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ANAL REPORT

HAZARDOUS MINE OPENING PROJECT; PHASE 25, PROJECT 27

DSL-AMRB 90-021

Basin, Boulder, Cataract, High Ore,
Montana City and Elliston Mining Districts

Jefferson and Powell Counties, Montana

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FINAL REPORT

**HAZARDOUS MINE OPENING PROJECT; PHASE 25, PROJECT 27
DSL-AMRB 90-021**

**Basin, Boulder, Cataract, High Ore, Montana City, and Elliston Mining Districts,
Jefferson and Powell Counties, Montana**



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FINAL REPORT

**HAZARDOUS MINE OPENING PROJECT; PHASE 25, PROJECT 27
DSL-AMRB 90-021**

**Basin, Boulder, Cataract, High Ore, Montana City, and Elliston Mining Districts,
Jefferson and Powell Counties, Montana**

Prepared for:

Department of State Lands
Abandoned Mine Bureau

Prepared by:

Chen-Northern, Inc.
1610 B Street
Helena, MT 59604

June 1992

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1.0 INTRODUCTION

Hard rock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of unprotected shafts and adits in mining districts across the state. The hazards associated with these mine openings are many, ranging from bad air to falling rock and cave-ins. The purpose of this project was to abate some of these hazards located in the Basin, Boulder, Cataract, Elliston, High Ore, and Montana City Mining Districts. This project was one of a continuing series of hazardous mine opening closure projects completed by the Montana Abandoned Mine Reclamation Bureau (AMRB).

1.1 SITE DESCRIPTION

The sites included in Hazardous Mine Opening Project; Phase 25, Project 27 (HMO Project 27) are located in or near residential or recreation areas, within historic areas, or close to public roads. All mine openings included in this project are considered hazardous to public safety. The shafts involved were deep enough to prevent unaided escape upon entry. Adits were accessible to the curious, exposing dangerous underground workings and unknown hazards.

1.2 SITE LOCATIONS

This project included approximately 115 openings at 70 locations in the Basin, Boulder, Cataract, High Ore and Montana City Mining Districts of Jefferson County and Elliston mining district of Powell County, Montana. Legal descriptions of all sites constructed are listed in Table 1-1. Site locations are shown on the vicinity and hazard maps contained in Appendix A.

1.3 PROJECT OBJECTIVES

HMO Project 27 was designed and executed with the intent of eliminating accidental or unauthorized entry to mine openings that exposed unknown hazards at a number of abandoned hard rock mines in Jefferson and Powell Counties, Montana. Sites were selected from the non-coal database inventory. Backfilling was the preferred reclamation option for

closing hazardous adits and shafts. Alternative methods such as steel grates, culverts, and fencing were also utilized at the claimant's or property owner's request to preserve access to a specific mine openings.

TABLE 1-1
HAZARDOUS MINE OPENING PROJECT 27
SITE LOCATIONS

PA #	COUNTY	MINING DISTRICT	SITE NAME	LEGAL DESCRIPTION
----	-----	-----	-----	-----
22-282	Jefferson	Basin	Bluebell Health	T06N R06W S24 NE NE
22-286	Jefferson	Basin	Boulder	T06N R06W S13 NE NE
22-293	Jefferson	Basin	Doris	T06N R05W S07 SW SE
22-320	Jefferson	Basin	Eureka	T06N R05W S18 SW SW
22-283	Jefferson	Basin	Hope	T06N R05W S18 NW SE
22-275	Jefferson	Basin	Indian Head Rock	T06N R06W S14 SE SE
22-031	Jefferson	Basin	Josephine	T08N R06W S26 SE NE
22-301	Jefferson	Basin	Marguerite	T06N R05W S06 NE NW
22-316	Jefferson	Basin	NE NW Section 6	T07N R05W S06 NE NW
22-295	Jefferson	Basin	NW SW Section 7	T07N R05W S07 NW SW
22-317	Jefferson	Basin	Placer	T08N R05W S31 NW SW
22-274	Jefferson	Basin	Porphyry	T06N R06W S14 SE SE
22-315	Jefferson	Basin	SE NW Section 30	T08N R05W S30 SE NW
22-331	Jefferson	Basin	SE SE Section 25	T08N R06W S25 SE SE
22-292	Jefferson	Basin	SW SE Section 1	T06N R06W S01 SW SE
22-319	Jefferson	Basin	Torpy Gulch	T06N R06W S07 SE SW
22-314	Jefferson	Basin	Winters Camp	T07N R06W S09 NE SE
22-329	Jefferson	Boulder	Boulder View	T06N R05W S28 SW NW
22-271	Jefferson	Boulder	May Day	T06N R05W S36 NE SE
22-241	Jefferson	Boulder	NE NW Section 15	T04N R02W S15 NE NW
22-043	Jefferson	Boulder	SW NW Section 6	T05N R05W S06 SW NW
22-325	Jefferson	Boulder	SW SE Section 21	T05N R05W S21 SW SE
22-232	Jefferson	Boulder	SW SW Section 24	T05N R03W S24 SW SW
22-273	Jefferson	Boulder	SW SW Section 8	T05N R04W S08 SW SW
22-276	Jefferson	Boulder	Saul's Claim	T06N R05W S33 SW SE
22-018	Jefferson	Boulder	Silversmith	T06N R05W S29 SW NE
22-139	Jefferson	Cataract	Ba Ka Maa	T07N R05W S11 SE NE
22-125	Jefferson	Cataract	Boston	T06N R05W S04 SW SE
22-132	Jefferson	Cataract	Boulder Chief	T07N R05W S27 SW NW
22-333	Jefferson	Cataract	Boulder Vestal	T06N R05W S09 SE NW
22-127	Jefferson	Cataract	Buckeye	T06N R05W S04 NW SE
22-137	Jefferson	Cataract	Corbitt	T08N R05W S28 NE NE
22-106	Jefferson	Cataract	Crescent	T08N R05W S29 NE NE
22-129	Jefferson	Cataract	Deer Lodge	T06N R05W S04 SW SE
22-140	Jefferson	Cataract	Ida M.	T07N R05W S27 SW NE
22-135	Jefferson	Cataract	Ida May	T08N R05W S28 NW NE
22-175	Jefferson	Cataract	Marey An	T07N R05W S18 SE SE
22-131	Jefferson	Cataract	Mineapolis	T06N R05W S04 SE NW
22-130	Jefferson	Cataract	Mount Thompson	T07N R05W S34 NW SW
22-161	Jefferson	Cataract	NE NW Section 3	T06N R05W S03 NE NW
22-170	Jefferson	Cataract	Rocker/Ada	T07N R05W S17 SW NE
22-150	Jefferson	Cataract	SE SW Section 28	T07N R05W S28 SE SW
22-169	Jefferson	Cataract	SW NW Section 29	T07N R05W S29 SW NW
22-138	Jefferson	Cataract	Vera Marie	T07N R05W S33 NW NW
22-133	Jefferson	Cataract	Victory	T06N R05W S09 NE NW
22-375	Jefferson	Cataract	White Pine/Custer	T06N R05W S04 SW NE
22-181	Jefferson	High Ore	NE NE Section 15	T06N R05W S14 NW NW
22-191	Jefferson	High Ore	Rochester	T06N R05W S12 NE NW
22-183	Jefferson	High Ore	S. B. Jr.	T06N R05W S02 NE SW
22-180	Jefferson	High Ore	SW NE Section 15	T06N R05W S15 SW NE

TABLE 1-1
HAZARDOUS MINE OPENING PROJECT 27
SITE LOCATIONS

PA # -----	COUNTY -----	MINING DISTRICT -----	SITE NAME -----	LEGAL DESCRIPTION -----
22-192	Jefferson	High Ore	Stair	T07N R05W S35 NE SE
22-187	Jefferson	High Ore	Will Parkinson	T07N R05W S36 SW SW
22-380	Jefferson	Montana City	Allen	T09N R03W S08 SE SW
39-057	Powell	Elliston	Champion	T08N R06W S15 NW NW
39-067	Powell	Elliston	Excelsior	T08N R06W S11 NW SE
39-041	Powell	Elliston	Hub Camp	T08N R06W S04 NE NW
39-022	Powell	Elliston	Julia	T08N R06W S05 S SW
39-018	Powell	Elliston	Kimball	T08N R07W S12 NW NE
39-006	Powell	Elliston	Lily/Orphan Boy	T08N R06W S15 NE SW
39-037	Powell	Elliston	NE NW Section 12	T08N R07W S12 NE NW
39-056	Powell	Elliston	NW SW Section 15	T08N R06W S15 NW SW
39-064	Powell	Elliston	Orphan Widow	T08N R06W S05 NW
39-066	Powell	Elliston	SE SW Section 8	T08N R06W S08 SE SW
39-055	Powell	Elliston	SW NW Section 26	T08N R06W S26 SW NW
39-024	Powell	Elliston	Third Term	T09N R06W S28 NW SE
39-076	Powell	Elliston	Total Wreck	T08N R06W S15 SW SW
39-058	Powell	Elliston	West Ontario	T08N R06W S22 SW NW

1.4 MINING DISTRICT HISTORY

BASIN & CATARACT - Basin, like most camps in the area, dates from the 1860's, and its first cabins were those of miners who built at the mouth of Basin Creek, beside the Boulder River. As the rich placers played out, the miners searched for the source of the gold which they discovered around 1870 in out-croppings on the surrounding mountain slopes. In 1873 the Zach Thompson Company located the Big Medicine, Susie Brown and Mount Thompson leads. The best of them, including the Eva May, were up Cataract Creek. Many of the mines located in 1880 and in later years became the leading producers of the district. The Cataract Mining Company, at one time, had a monthly payroll of \$17,000 and daily shipped one or more cars of concentrates to the smelters in Butte.

Two prominent mines, the Katy and the Hope, contributed greatly to the growth and economic status of Basin. In 1893, the Glass Brothers commenced work on the Katy and the adjoining Hope. After a year's development they organized the Basin & Bay State Mining Co. The Katy mill ran successfully until it was destroyed by fire in 1895. A year later the Hope suffered the same fate and the properties lay idle for nearly twenty-two years. Between 1897 and 1917 many of the mines were idle due to high smelting charges and the low price of silver. The estimated production of the district, prior to 1904, was \$8,000,000.

In 1917 the Jib Consolidated Mining Co. reopened the Hope and Katy mines. By 1924 high-grade gold had been encountered and reserve bodies of ore were blocked out in excess of \$9,000,000. Within two years, gold ore totaling \$1,700,000 was recovered from the Hope and Katy. As production grew, Basin's population blossomed from a mere handful to over a thousand and supported twelve saloons. Soon thereafter, the boom was over as stock market manipulations and mismanagement caused the Jib property to shutdown.

BOULDER & HIGH ORE - The town of Boulder was started in the early 1860's as a stage station on the Virginia City- Fort Benton road. In July, 1862 a rush of prospectors began placer operations along the Boulder River. Mines in the vicinity include the Australian, Belle of Boulder, Wall Street, Amazon and the Comet near the head of High Ore Gulch. A small settlement grew up around the Comet and in 1869 was estimated to have a population of 300. This famous mine is credited with a production of \$13,000,000 in gold and silver.

MONTANA CITY - About five miles southeast of Helena lies the early mining camp of Montana City where gold bearing gravels of Prickly Pear Creek were discovered in the summer of 1862. Montana City, the name given to the scattering of cabins in September 1864, was never a big camp, although at one time several hundred miners worked the placers extensively. No production records are available for mines in this district.

ELLISTON - Seventeen miles west of Helena lies the town of Elliston. Elliston was a lively hub in the 1890's when thirteen saloons catered to woodcutters and railroad men employed by the Anaconda Copper Mining Co. to provide cord wood for the Anaconda smelter. Mining properties in the district include the Julia, eight miles south of Elliston on the south side of Telegraph Creek, where gold was obtained from surface ore. Several log buildings, including a bunkhouse and a large dump, remain. This mine was first operated in 1913 by the Montana-Clinton Copper Mining Co. Other mines in the district were the Copper Queen, Lily/Orphan Boy and the Ontario. Production records for mines in this area are unavailable.

2.0 PROJECT PLANNING AND CONSTRUCTION

The following people/firms have contributed to the coordination, design, execution, and inspection of HMO Project 27:

◆ PROJECT COORDINATION & DESIGN	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT 59604
◆ ENGINEERING PLAN PREPARATION	Chen-Northern, Inc. 1610 B Street P.O. Box 4699 Helena, MT 59604
◆ CONTRACTOR	Scott Construction, Inc. P.O. Box 777 East Helena, MT 59635
◆ QUALITY CONTROL INSPECTION	Chen-Northern, Inc. Joe Murphy, Project Inspector
◆ AMRB PROJECT MANAGER	Ed Gensler/Joel Chavez

3.0 CHRONOLOGICAL LISTING OF EVENTS

HMO Project 27 was constructed during the fall of 1991 and the spring of 1992. The Contractor performed all construction activities according to contract specifications and within the contract period. The following section describes the sequence of events and milestones for the project.

3.1 PRE-BID CONFERENCE

A pre-bid conference was held on October 29, 1990 at the Montana Department of State Lands in Helena. A slide show was presented to acquaint prospective bidders with site conditions as an alternative to a walk through observation of all 115 mine openings. The slide presentation included a narrative describing site access and construction considerations for specified reclamation.

3.2 PROJECT BIDS

Montana Department of State Lands personnel publicly opened bids for HMO Project 27 (DSL-AMRB: 90-021) on November 8, 1990. The three lowest bids are presented below. Complete bid tabulation results are presented in Appendix B.

Scott Construction, Inc., East Helena, MT	\$ 88,349.50
O'Neill Contracting, Inc., Basin, MT	\$ 131,037.50
Sharbono Construction, Helena, MT	\$ 132,200.00

3.3 PROJECT CHRONOLOGY

HMO Project 27 was completed during two construction seasons within the contract period. The following chronology presents the sequence of events that lead to completion of the project.

Contractor	Scott Construction, Inc.
Notice of Award	November 26,1990
Notice to Proceed	August 15, 1991
Construction Start-up	August 19, 1991
Winter Shutdown	November 25, 1991
Construction Start-up (Spring '92)	May 28, 1992
Substantial Completion	June 1, 1992
Final Acceptance	June 17,1992

4.0 PROJECT CONSTRUCTION

4.1 DESCRIPTION OF PROJECT PLAN

HMO Project 27 was designed and implemented with the intent of eliminating accidental or unauthorized entry to hazardous mine openings. These openings exposed unknown hazards at a number of abandoned hard rock mines in Jefferson and Powell Counties. The Project was subsequently expanded to include the emergency backfilling of three subsidence areas in a residential area near Montana City. This work was performed on a lump sum basis.

Backfill was recommended for all mine openings to permanently eliminate hazards associated with abandoned adit and shaft openings. However, many landowners and/or claimants would not allow closure by backfill, so closure methods allowing access to the mine openings (i.e. steel grates, culverts, cable nets or adit doors) or farm type 5-wire fences were installed. These alternative closure methods prevent accidental entry but are semi-permanent in nature and are subject to vandalism.

Steel grate systems used as shaft closures were fabricated by an independent contractor. The grates were available for transport to Project 27 sites at the start of the project. At two sites slated for steel grate systems, historic headframes interfered with placement of the standard prefabricated grate sections. In order to comply with State requirements to maintain cultural integrity of reclamation sites, specialty grates were fabricated on-site by the Contractor to accommodate the headframe support timbers. A specialty grate was also fabricated at a third shaft site due to the lack of equipment access. The specialty grates were fabricated and installed according to the standard specifications for steel grate systems included in the contract documents.

Landowners whose hazardous openings were closed with semi-permanent, locking closures were provided with keys to all locks installed on their property. A key receipt form was sent to each claimant to sign and return. Receipts have not been received from all claimants as of this report date. Additional key receipt forms will be forwarded to DSL for inclusion in project files. Table 4-1 presents the status of the key receipts and the signed forms are included as Appendix C.

TABLE 4-1
KEY RECEIPT ACKNOWLEDGEMENT STATUS
HMO PROJECT 27

MINING DISTRICT	SITE NAME	NO.	CLOSURE	LANDOWNER	KEY RECEIPTS
Basin	Boulder	2-10	Culvert	Ardis L. Bragg	Yes
Basin	Hope	10-15	Adit Gate	Keith & Donald Johnson	
Basin	NW SW Sec. 7	11-22	Culvert	G. Holshue	Yes
Basin	Porphyry	13-26	Culvert	Raymond Dawes	
Basin	SE NW Sec.30	14-27	Grate	Basin Cr. Mining Co.	
	SE SE Sec.25	8-28	Grate	c/o Dan Adams	
Elliston	SW NW Sec.26	17-18	Culvert		
Basin	SW SE Sec. 1	15-32	Culvert	Jim & Wayne Turkia	Yes
Basin	Winters Camp	19-36	Adit Gate	W. McGillan	
Boulder	NE NW Sec.15	5-3 5-4 5-5 5-6	Grate Grate Culvert Grate	Tom Carey Cattle Co.	Yes
Boulder	SW SW Sec.24	8-9	Grate	Dulaney & Schiavon	Yes
Cataract	Boulder Vestal	4-5 4-9 4-10 4-12	Culvert Culvert Culvert Culvert	Joe Robertson	
	SE SW Sec. 28	20-39	Culvert		
	Vera Marie	23-44	Grate		
Cataract	Ida May	11-23	Grate	St. Paul's Methodist	
Cataract	Marey An	12-24	Grate	Robert Wood	Yes
Cataract	Victory	24-46	Grate	Joseph Twomey	Yes
High Ore	S.B. Jr.	5-3	Culvert	North Lily Mining Co.	Yes
High Ore	SW NE Sec. 15	6-4	Culvert	Joseph Mason	
Elliston	Champion	2-1	Grate	Dale Horne	
Elliston	Excelsior	3-4	Grate	Robert Lawson	Yes

MINING DISTRICT	SITE NAME	NO.	CLOSURE	LANDOWNER	KEY RECEIPTS
Elliston	Julia	6-6	Grate	Dave Newman	
		6-7	Culvert		
	Lily/Orphan Boy	8-9	Grate		
	NW SW Sec. 15	11-11	Culvert		
	Total Wreck	16-20	Grate		
Elliston	Kimball	7-8	Culvert	Adams & Dugal	Yes
Elliston	NE NW Sec. 12	9-10	Culvert	Earthworks, Inc. c/o Bruce Cox	
	SE SW Sec. 8	15-16	Culvert		
Elliston	Orphan Widow	13-12	Culvert	Bill Hurt Mining Co.	
		13-13	Culvert		

4.2 CONTRACTOR'S OPERATION

The project was performed utilizing a crew of two to five men. Lee Scott and Gary Martinsen were field superintendents during the project. The construction crew consisted of Dean Tabbert, Joe Crawford, Andy Phillips, and Chris Nachtesheim.

The following list identifies the major equipment used by Scott Construction, Inc. to complete HMO Project 27.

- 3/4 Ton Four Wheel Drive Flatbed Truck
- Caterpillar 931 Track Loader
- Peterbilt Tractor w/40 ton trailer
- Caterpillar D-7 Dozer
- 3/4 Ton Four Wheel Drive Tool Truck
- 1/3 Yard Portable Concrete Trailer
- 1/2 Ton Four Wheel Drive Truck & Portable Welder
- Tilt Bed Trailer
- 2 1/2 Ton Flat Bed Truck
- Four Wheel Drive All Terrain Vehicle

4.3 CHANGE ORDERS

Three change orders were issued during HMO Project 27 for a net change in contract price of (+) \$ 511.10 or .4% of the contract total. Table 4-2 presents a cost summary of project change orders. Appendix D contains copies of the Change Orders issued for the project.

During the course of construction fourteen changes to the original contract were necessary. One opening in the Montana City Mining District was added to the project and four sites were deleted due to natural abatement since the sites were inventoried. Six changes were instituted due to hazardous working conditions (fractured, unstable, or overhanging rock) in the mine portal areas. This required changing the specified reclamation from cable nets or adit gates (closures requiring the use of vibratory drilling equipment) to three and four foot diameter corrugated galvanized steel culverts with locking hatches.

The remaining changes were the result of directives issued by the AMRB project manager and new owners or claimants not originally contacted for reclamation consent. The reclamation specified for a site was modified to a closure approved by the new owner.

TABLE 4-2
CHANGE ORDER SUMMARY
HMO PROJECT 27

CHANGE ORDER	AMOUNT	DATE
No. 1	\$ 200.00	October 17, 1991
No. 2	\$ 745.00	January 13, 1992
No. 3	\$ <433.90>	June 24, 1992
TOTAL	\$ 511.10	

The most significant change involved the installation of culverts in place of the cable nets specified in the bid document. A majority of the adit portals consisted of rock that was fractured and unsupported. The vibration caused by the drilling required for rock bolt installation often jeopardized the operators safety by dislodging loose rock. In numerous cases a drill hole suitable for rock bolt installation could not be obtained. At these sites culverts were installed instead.

4.4 CONSTRUCTION ACTIVITIES/QUANTITIES USED

The Contractor performed the following work during HMO Project 27:

- ◆ Backfilled 37 mine openings with 8,817 cubic yards of material
- ◆ Blasted and collapsed 11 mine openings
- ◆ Installed 20 adit culverts with locking hatches
- ◆ Installed 2 steel gate adit doors
- ◆ Installed 15 steel grate systems with locking hatches
- ◆ Installed 22 Owner-provided hazard signs
- ◆ Erected 5,276 linear feet of farm type 5-wire fence
- ◆ Seeded, fertilized and mulched all areas disturbed by construction operations (approximately 29 acres)

5.0 PROJECT COSTS

5.1 PAYMENT REQUESTS

The total contract amount of HMO Project 27 was \$ 116,977.35 compared to the engineers estimate of \$ 139,789.78. Table 5-1 presents a summary of the approved payment requests issued for HMO Project 27. Appendix E contains copies of these documents, the Certificate of Substantial Completion and the Affidavit on Behalf of Contractor.

TABLE 5-1
PAYMENT REQUEST SUMMARY
HMO PROJECT 27

PAYMENT REQUEST	AMOUNT	DATE
No. 1	\$ 55,727.33	October 17,1991
No. 2	\$ 47,018.76	January 21,1992
Final	\$ 14,231.26	June 24, 1992
Total Contract Amount	\$ 116,977.35	

5.2 COST PER DISTRICT/MINE OPENING

The cost of reclamation performed in the six mining districts is presented in Table 5-2. These totals include fabrication cost of the steel grate sections which were provided to the contractor by the Owner. Appendix F contains a summary of project quantities and details the costs for each mine opening involved in HMO Project 27. For the purposes of this report the single site in the Montana City District is included in the cost summaries of the Boulder District.

TABLE 5-2
COST PER DISTRICT
HMO PROJECT 27

MINING DISTRICT	COST
Construction	
Basin	\$ 25,713.61
Boulder	15,409.37
Cataract	49,100.99
Elliston	22,491.73
High Ore	4,61.65
TOTAL CONSTRUCTION COST	\$116,977.35
Grate Fabrication	
Basin	\$ 1,553.80
Boulder	7,093.58
Cataract	3,522.90
Elliston	3,497.36
TOTAL GRATE FABRICATION COSTS	\$ 15,667.64
TOTAL PROJECT COSTS	\$132,644.99

5.3 PROFESSIONAL SERVICE FEES

Services provided by Chen-Northern, Inc. included ownership determination, landowner consent, budget preparation, grant application, weed board approval, engineering design, construction contract administration, quantity accounting and full-time resident inspection. The project included 70 locations resulting in extensive travel time. Construction activities were performed during the summer of 1991 and 1992. An analysis of these fees in relation to the Total Project Cost is included as Table 5-3.

TABLE 5-3
ANALYSIS OF PROFESSIONAL SERVICE FEES
HMO PROJECT 27

ENGINEERING

Design -	Grant Preparation, Site Evaluation, Engineering and Bid Documents	\$ 18,888.75
Inspection -	Construction Administration, Construction Inspection, and Final Report	<u>\$ 35,346.88</u>
Total Engineering Fee		\$ 54,235.63

CONSTRUCTION

Steel Grate Fabrication	\$ 15,667.64
Contractors Construction	<u>\$ 116,977.35</u>
Total Construction Cost	\$ 132,644.99

PERCENTAGE ANALYSIS

Design Cost/Total Construction Cost	14.2%
Inspection Cost/Total Construction Cost	26.6%
Total Engineering Fee/Total Construction Cost	40.8%

6.0 PROJECT SUMMARY

6.1 PROJECT RECONCILIATION

Table 6-1 summarizes the differences between the reclamation closures specified in contract documents and those actually constructed. Appendix F contains a reconciliation of the work specified in the contract documents compared to what was actually constructed at each site involved in HMO Project 27.

TABLE 6-1
RECLAMATION CLOSURES SPECIFIED VS. CONSTRUCTED

CLOSURE	NUMBER SPECIFIED	NUMBER CONSTRUCTED
Steel Grate Systems	15	15
Adit Culverts	15	20
Adit Gates	5	2
Cable Nets	3	0
Blasts	12	11
Backfill	8,250 cy	8,817 cy
Farm Fence	5,575 l.f.	5,276 l.f.
Signs	60	22

The Basin district included abatement of thirty-two sites at eighteen locations. Eleven of these sites were backfilled or blasted closures with 465 cy of material; thirteen sites were enclosed with fences; culverts were installed at four adits; steel grates were placed over two shafts; and two large adits were fitted with locking gates.

The Boulder District involved closure of fifteen sites at ten locations including one site in the Montana City District. Nine sites were backfilled or blasted closures; steel grates were installed over four shafts; one culvert was placed in an adit; and, one site was dropped from the project due to natural abatement.

The larger and more developed Cataract District consisted of forty-one sites at twenty-two locations. In excess of 6200 cy of material was utilized to backfill nineteen sites in the district with the Deer Lodge, Minneapolis, and White Pine/Custer claims accounting for over 5600 cy (90%) of the total. Nine sites were protected with fences; culverts were placed in five adits; and, steel grates were installed over five shafts. Three sites in the district were dropped from the project due to natural abatement.

The High Ore District was the smallest district in the project with seven sites at six locations. Five sites were backfilled or blasted closures and two adits had culverts installed.

The Elliston District in Powell County is located on the west side of the Continental Divide and the project included twenty sites at fourteen locations. Eight adits were fitted with culverts and five steel grates were installed over shafts. Two grates were constructed on-site to accommodate headframe timbers (Lily-Orphan Boy) and metal scaffolding (Excelsior). Four backfill sites and three fence enclosures completed work in the district.

On November 25, 1991 the Contractor was allowed to discontinue operations under winter shut-down provisions of the contract. When construction resumed on May 28, 1992 installation of a steel grate system was completed at the Cataract District Ida May site. Work on the project was completed with a blasted closure in the Basin District at the Torpy Gulch site. Work at the Cataract District Crescent site was suspended and eventually dropped from the contract when it was determined that additional work at the site would be undertaken during another mine closure project.

6.2 SITE CONDITIONS AFTER COMPLETION

In the Fall of 1991, during the course of construction, the former AMRB project manager Ed Gensler made frequent visits to the project sites. Upon completion of the project in June 1992 a representative sampling of each reclamation method was inspected by the current AMRB project manager Joel Chavez together with the project inspector.

Farm type (F-5) fences were constructed around fifteen sites before Owner-provided hazard signs became available. Midway through the project signs for these sites were obtained; however, the Owner opted to forego additional costs for their installation due to the fact that these sites were in remote areas.

6.3 MONITORING AND MAINTENANCE

Periodic monitoring for subsidence of sites backfilled during the project should be conducted to ensure adequacy of the fill while the contractor is still in the area. Landowners were offered a "permanent" closure by selecting the backfill option. To minimize any liability to the State, all backfilled mine openings should be inspected on an annual basis for several years following completion of the project. The semi-permanent closures (culverts, cable nets, steel grates etc.) installed during the project may protect against unauthorized entry for a limited time. Vandalism and damage due to natural causes has been, and will continue to be, a problem with these types of closures. To reduce the public safety hazard associated with damaged closures, a monitoring program should be instituted to inspect all bulkheads and fences periodically. Any human or naturally caused damage should be reported to landowners for subsequent repair. It should be noted that maintenance of steel grates, adit gates and doors, hatches, locks, and bulkheads are the responsibility of individual claimants.

Revegetation efforts should be monitored for several years. Vegetation inspections should identify seeding failures on reclaimed sites and document species which are better suited to revegetate reclaimed sites. The presence or absence of weeds should also be documented to satisfy weed control obligations.

7.0 COMMENTS

7.1 CONTRACT PERIOD

On several occasions during construction of HMO Project 27, the contractor only employed a crew of one or two persons. This level of staffing increased oversight inspection and administration costs and reduced the efficiency of the construction project. We recommend that total contract time allowed for each project be closely reviewed and shortened if practical. This would require the contractor to employ larger crews to perform the work in less time, resulting in greater efficiency and cost savings.

The Contractor was instructed to begin work on HMO Project 27 on August 19, 1991. Completion of the project was required by November 26, 1991 (100 days). Contract documents (Section IV, Special Provisions, paragraph 4.10) include a provision to accommodate for winter shut-down. During the period of November 15 through April 15, if no work is performed, then no calendar days will be charged against the contractor. On November 25, 1991 the contractor requested winter shut-down with work remaining at only three sites. This required "carrying over" the contract into the next construction season. Tasks such as final payment and reconciliation and final report preparation which can more easily be accomplished during the winter months are then put off until the following field season. This increases the overall administrative and overhead costs of the project. In addition, it places a burden on the Engineering/Consulting contractors in scheduling personnel normally available for projects requiring field work.

We recommend that contracts be awarded on projects as early as possible in the field season to insure completion of construction operations within the specified contract time and before the November 15 winter shut-down date. We feel this would contribute to the overall efficiency of the program and promote further cost savings.

7.2 ADIT DOORS AND CABLE NETS AT UNSTABLE OPENINGS

The installation of adit gates, doors, and cable nets often requires the use of air, gas, or electric driven vibrating drills. Contractors and their crews are reluctant to use this type of equipment where fractured, unstable, or overhanging rock is present for fear that the

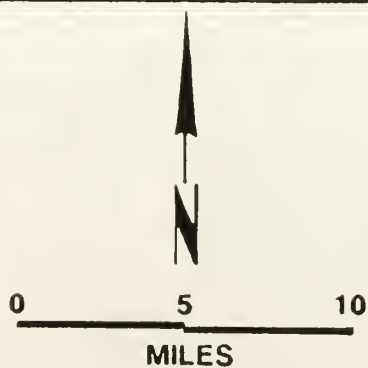
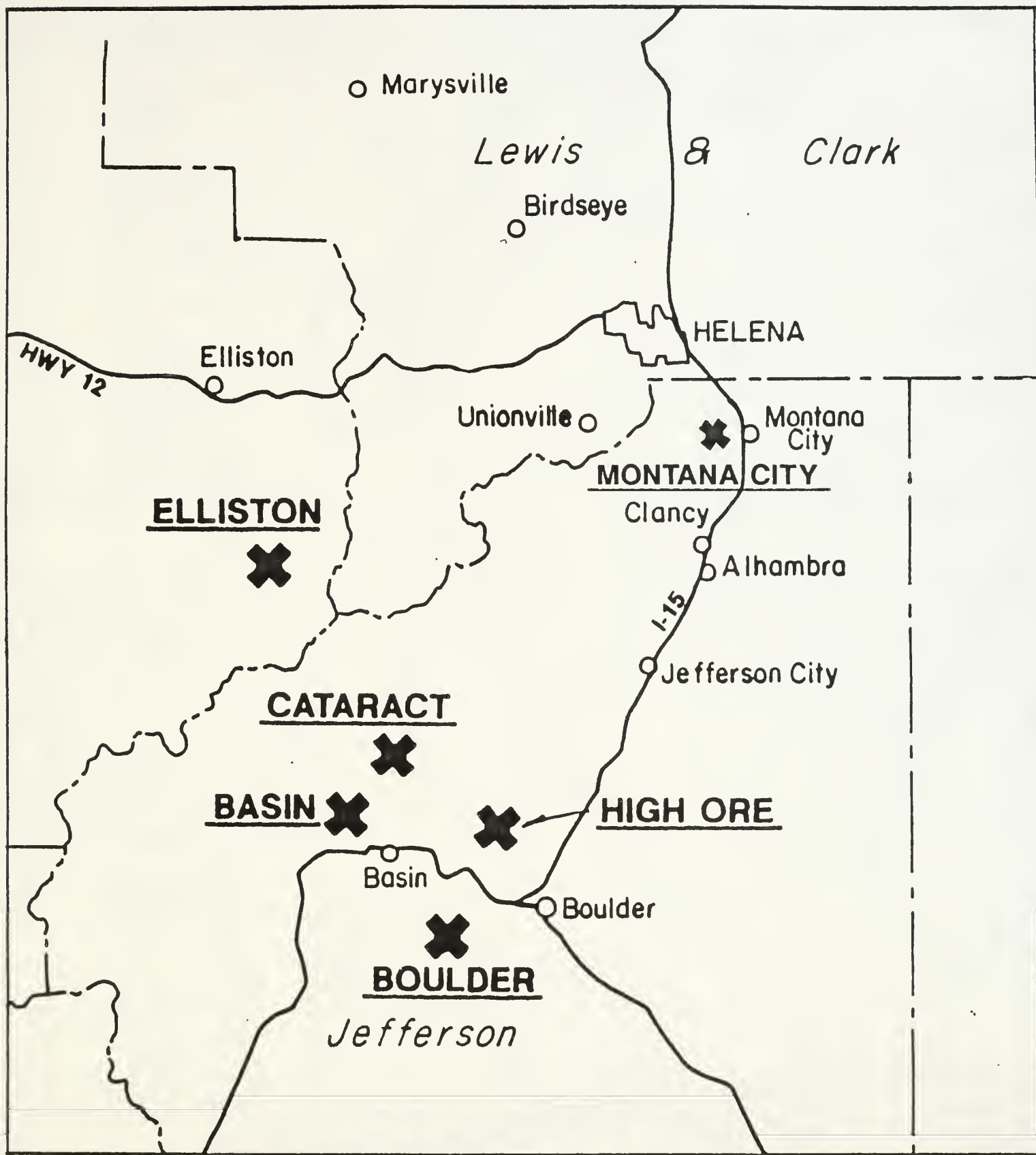
vibrations caused in the drilling process will dislodge this material and cause injury. Of the three cable nets and five adit gates specified in HMO Project 27, only two adit gates were installed due to unsafe working conditions in the portal areas. The remaining adit gates and cable nets were changed to culvert closures. Another disadvantage of using adit doors is the fact that the doors are often secured to existing mine timbers, which, over time, will rot or become dislodged. Adit doors are also easily susceptible to vandalism.

We feel these concerns are significant and we therefore recommend that the use of cable net closures and adit gates be discontinued except as a last resort at sites exhibiting competent rock. Corrugated galvanized steel culverts with a minimum three feet diameter opening are a good alternative for providing access to mine openings.

8.0 PHOTOGRAPHIC RECORD

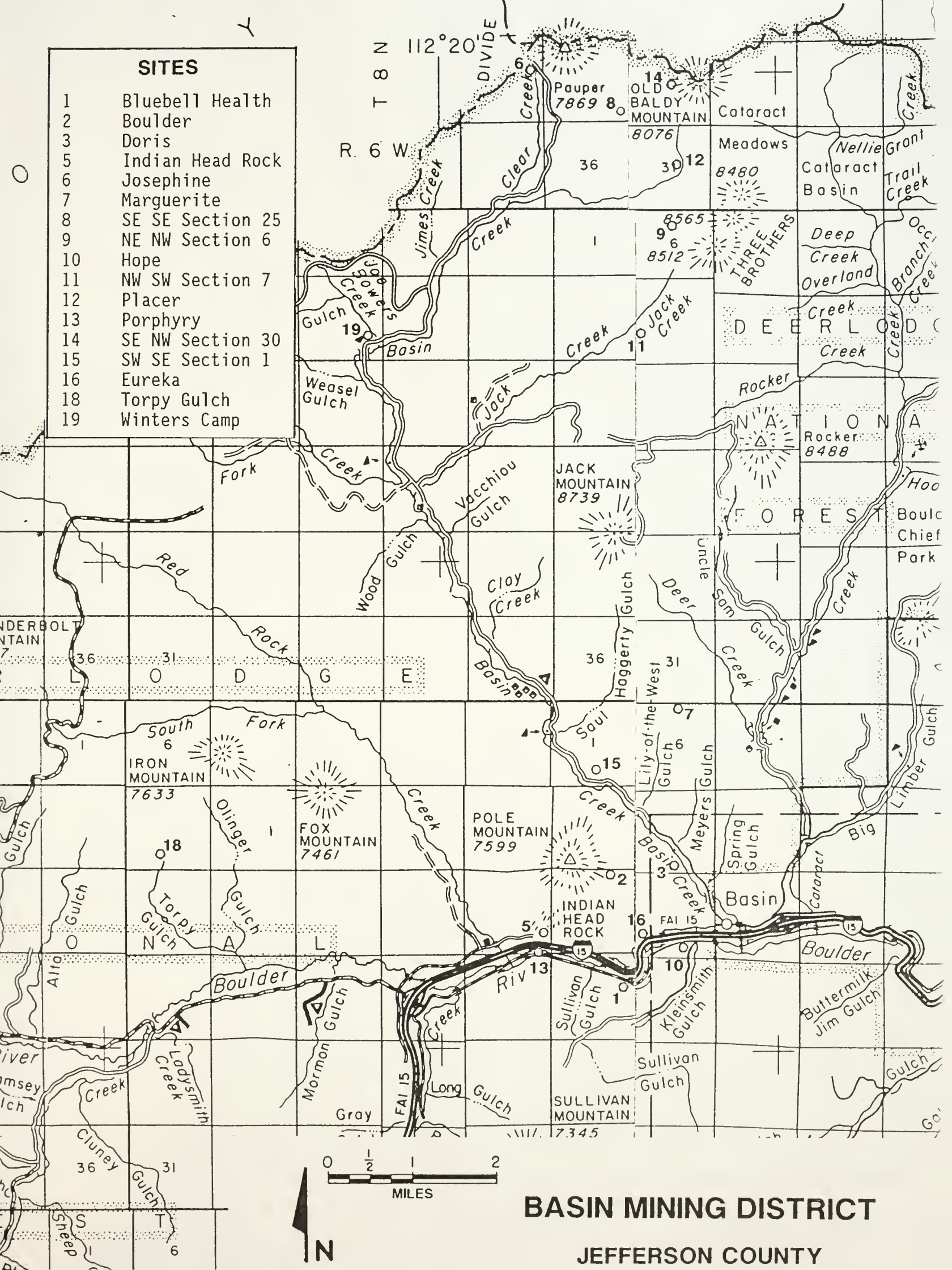
Before, during, and post-construction print and slide photographs were taken of each opening. This photographic record is contained in Appendix G.

APPENDIX A
VICINITY AND HAZARD MAPS



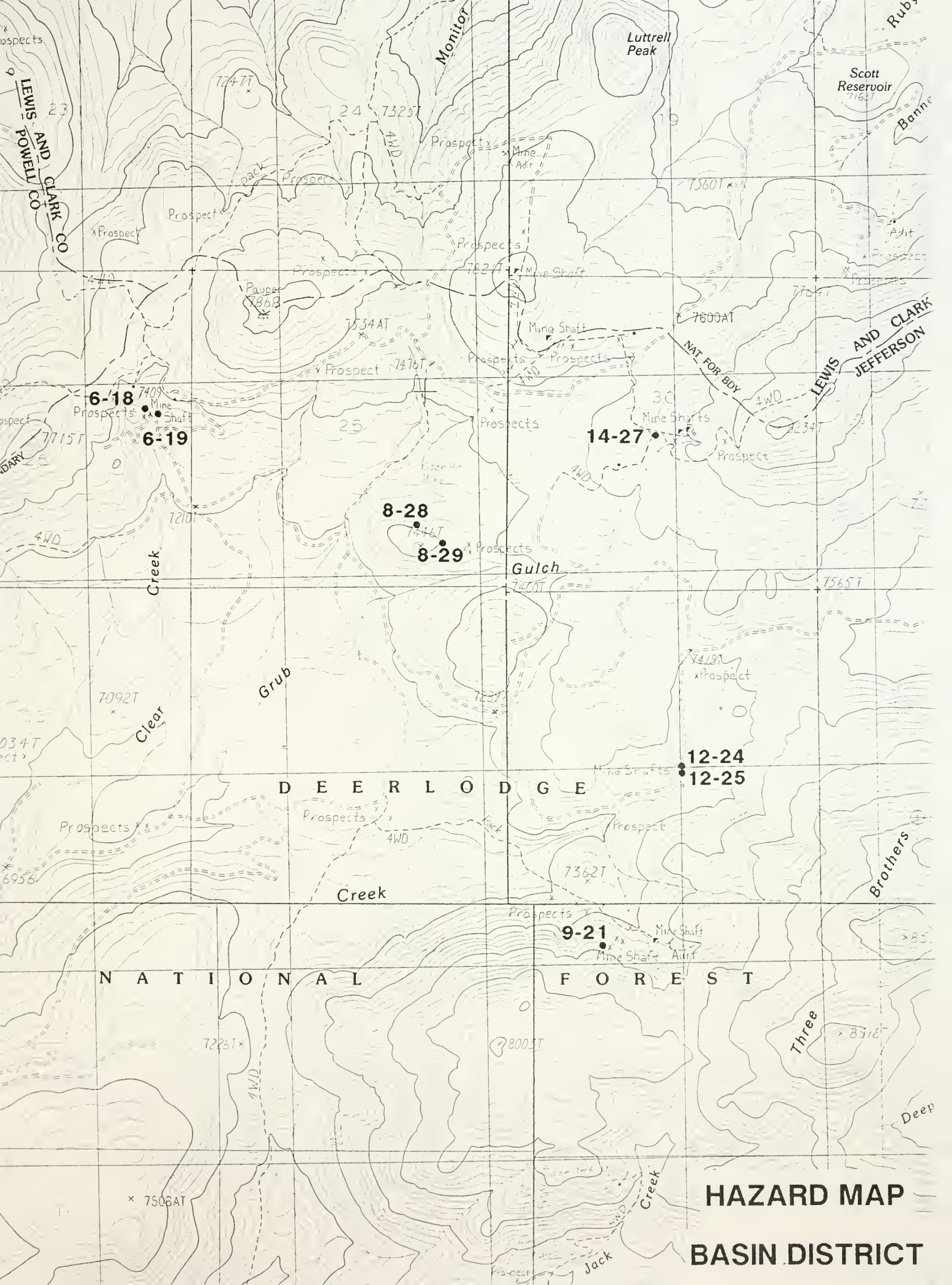
SITES

- 1 Bluebell Health
- 2 Boulder
- 3 Doris
- 5 Indian Head Rock
- 6 Josephine
- 7 Marguerite
- 8 SE SE Section 25
- 9 NE NW Section 6
- 10 Hope
- 11 NW SW Section 7
- 12 Placer
- 13 Porphyry
- 14 SE NW Section 30
- 15 SW SE Section 1
- 16 Eureka
- 18 Torpy Gulch
- 19 Winters Camp



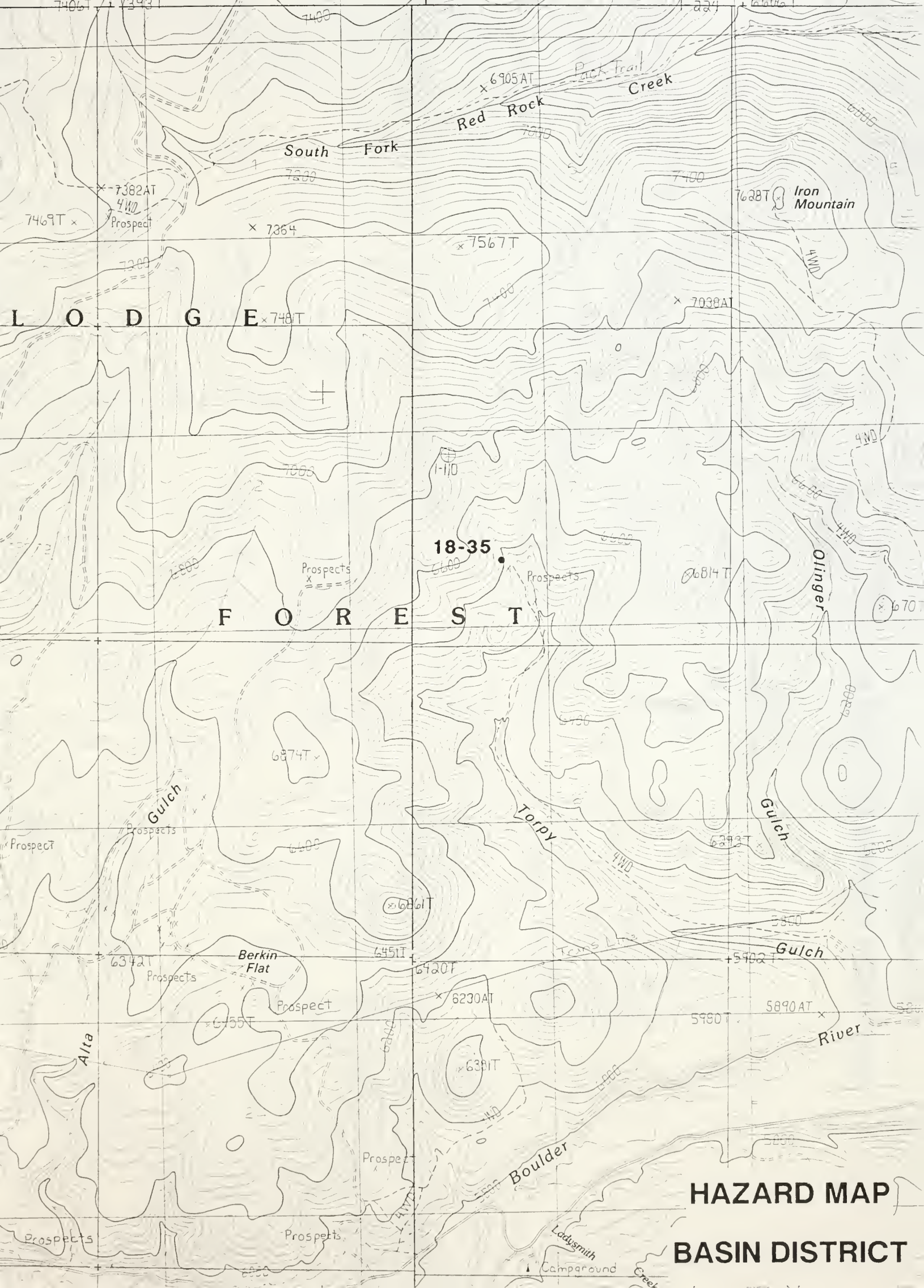
BASIN MINING DISTRICT

JEFFERSON COUNTY



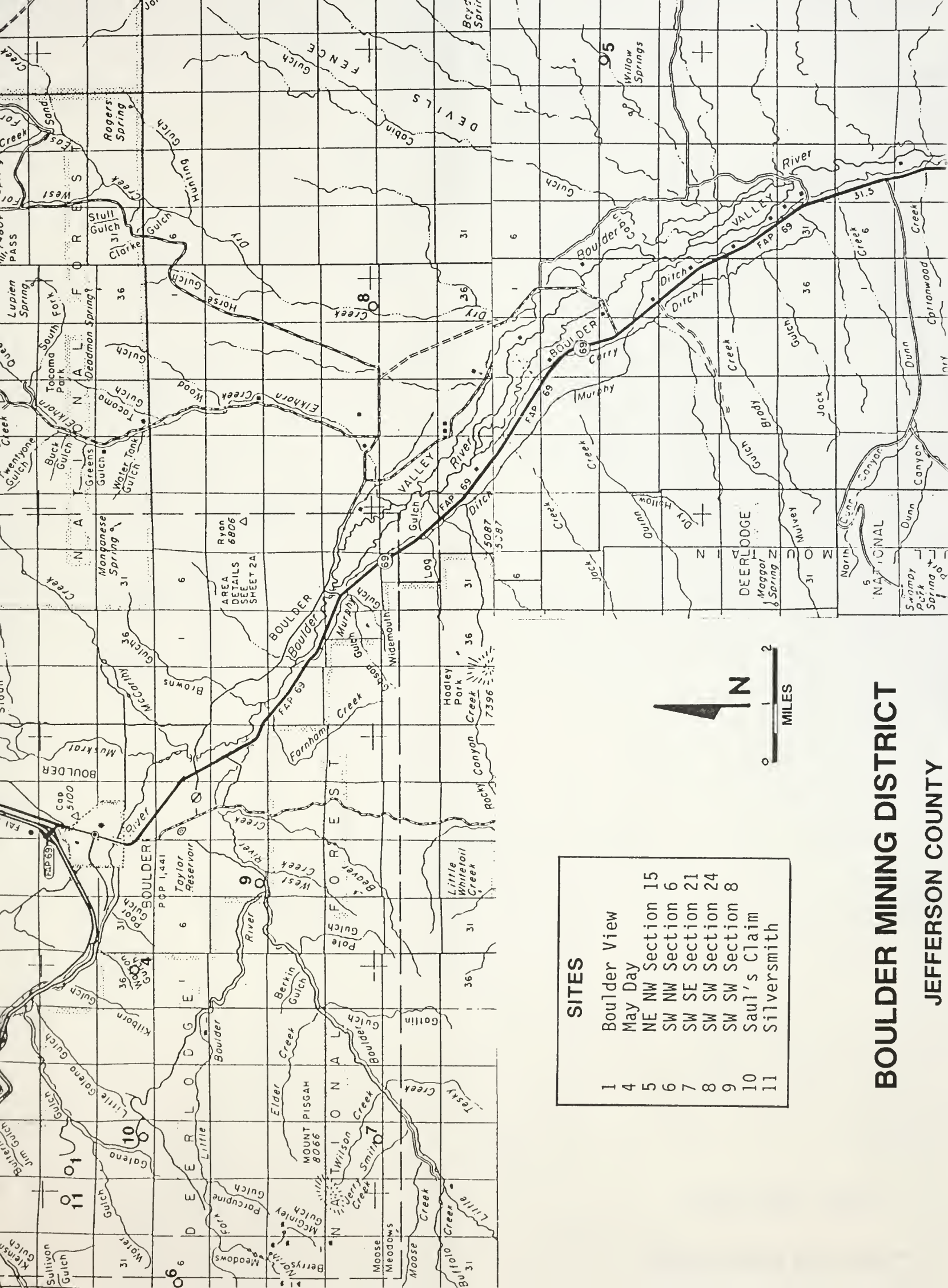
HAZARD MAP

BASIN DISTRICT



HAZARD MAP

BASIN DISTRICT



- | SITES | |
|-------|------------------|
| 1 | Boulder View |
| 4 | May Day |
| 5 | NE NW Section 15 |
| 6 | SW NW Section 6 |
| 7 | SW SE Section 21 |
| 8 | SW SW Section 24 |
| 9 | SW SW Section 8 |
| 10 | Saul's Claim |
| 11 | Silversmith |

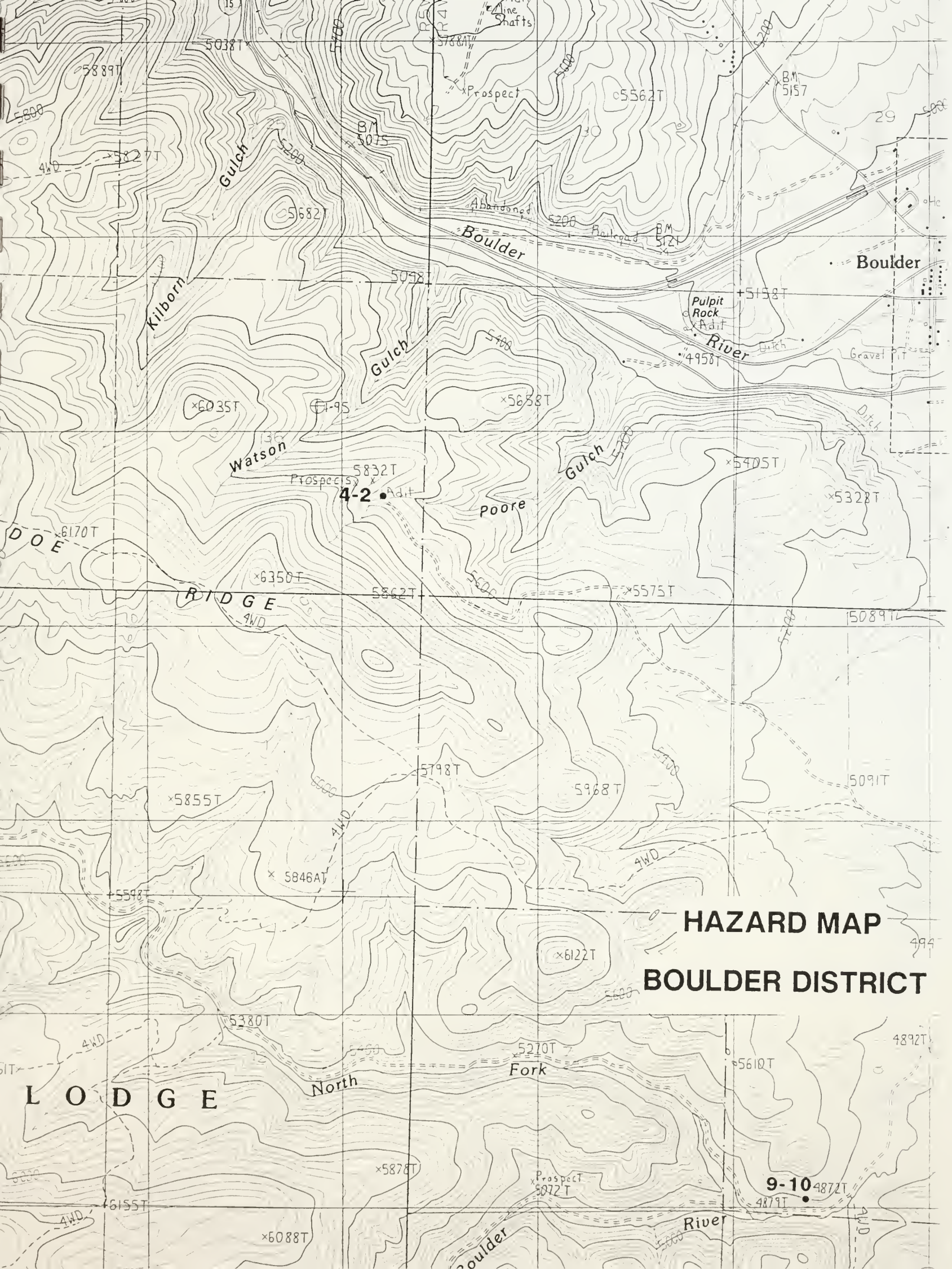
BOULDER MINING DISTRICT

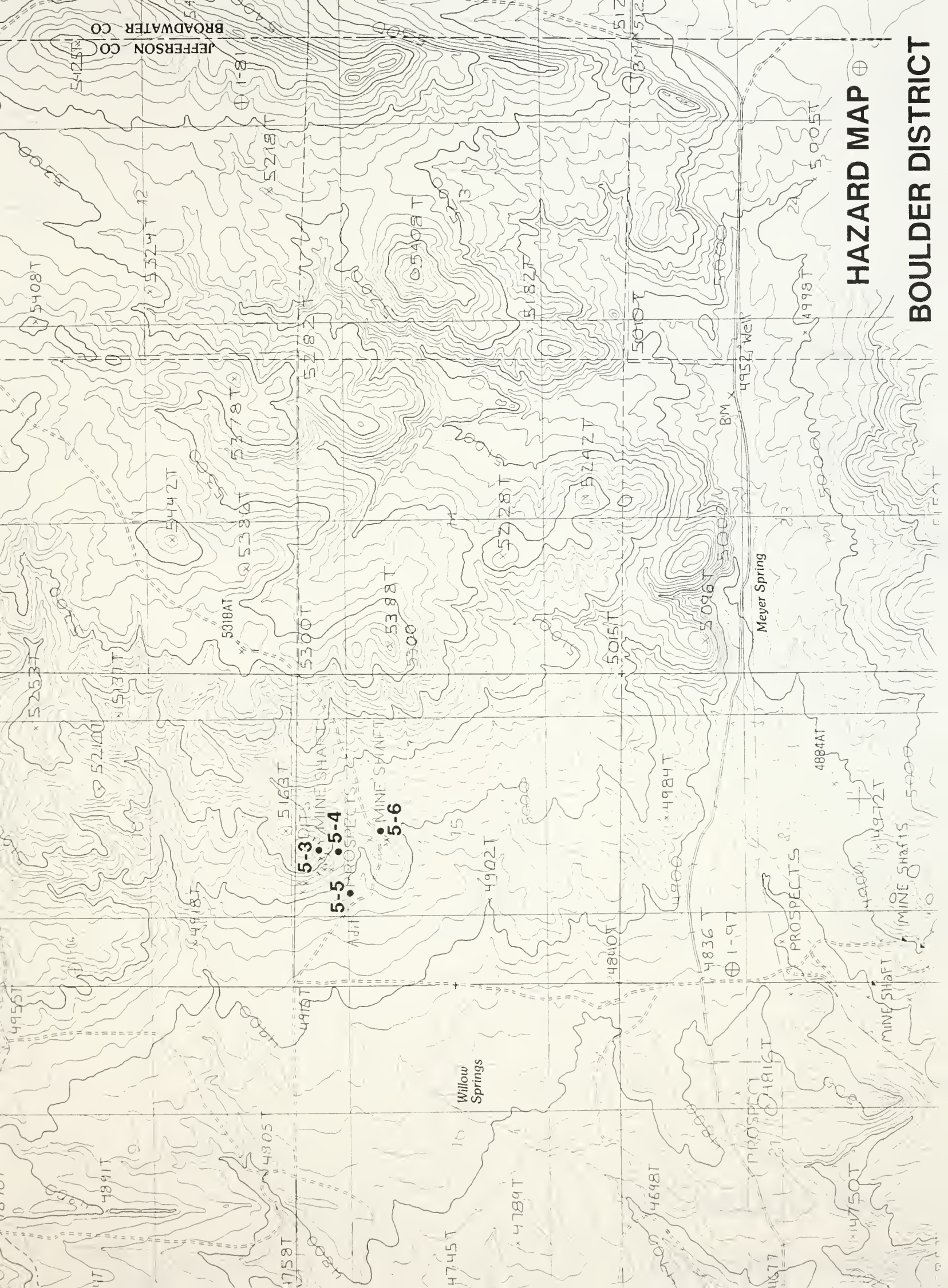
JEFFERSON COUNTY



DEER LODGE

HAZARD MAP
BOULDER DISTRICT

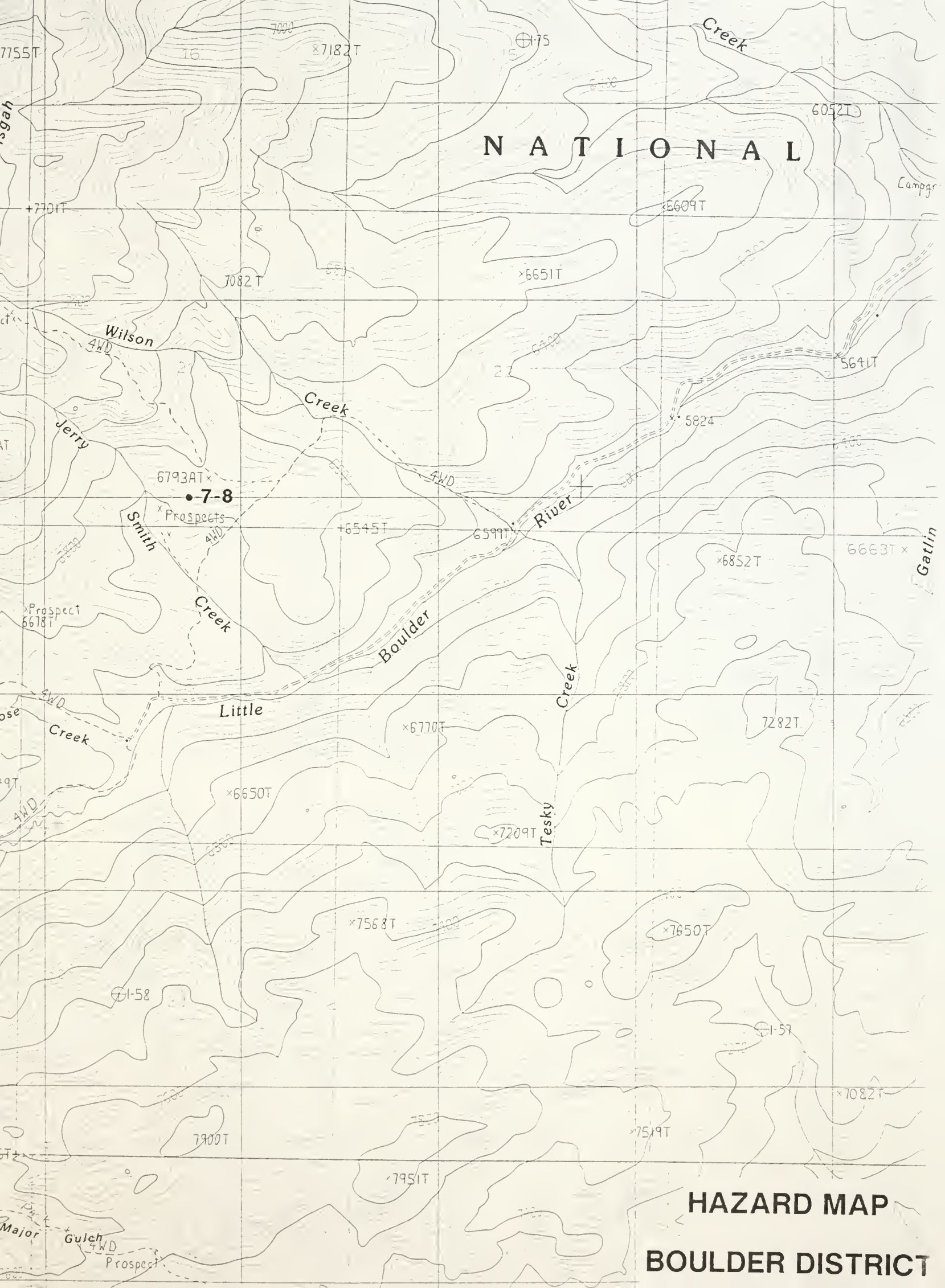




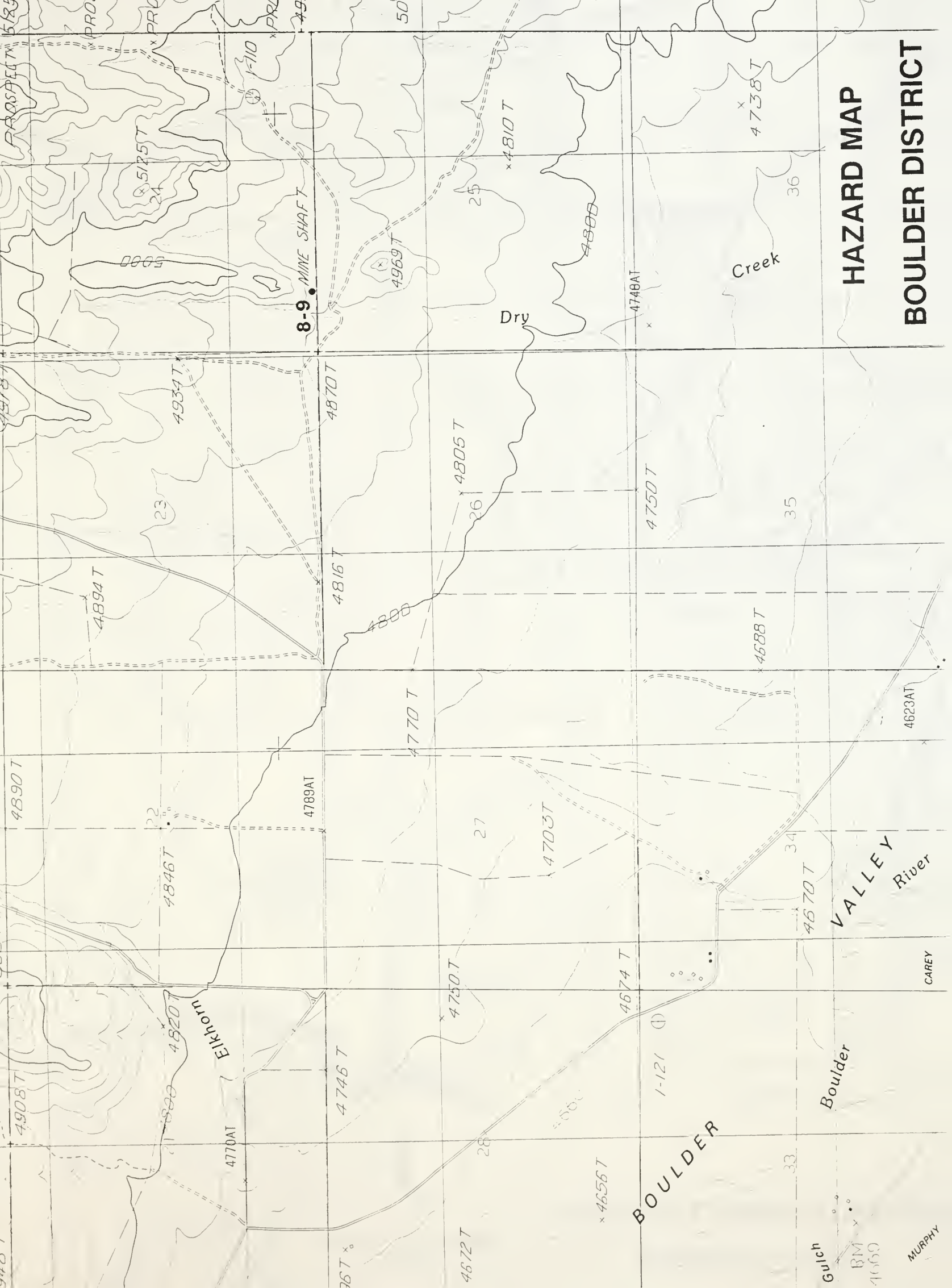
JEFFERSON CO
BROADWATER CO

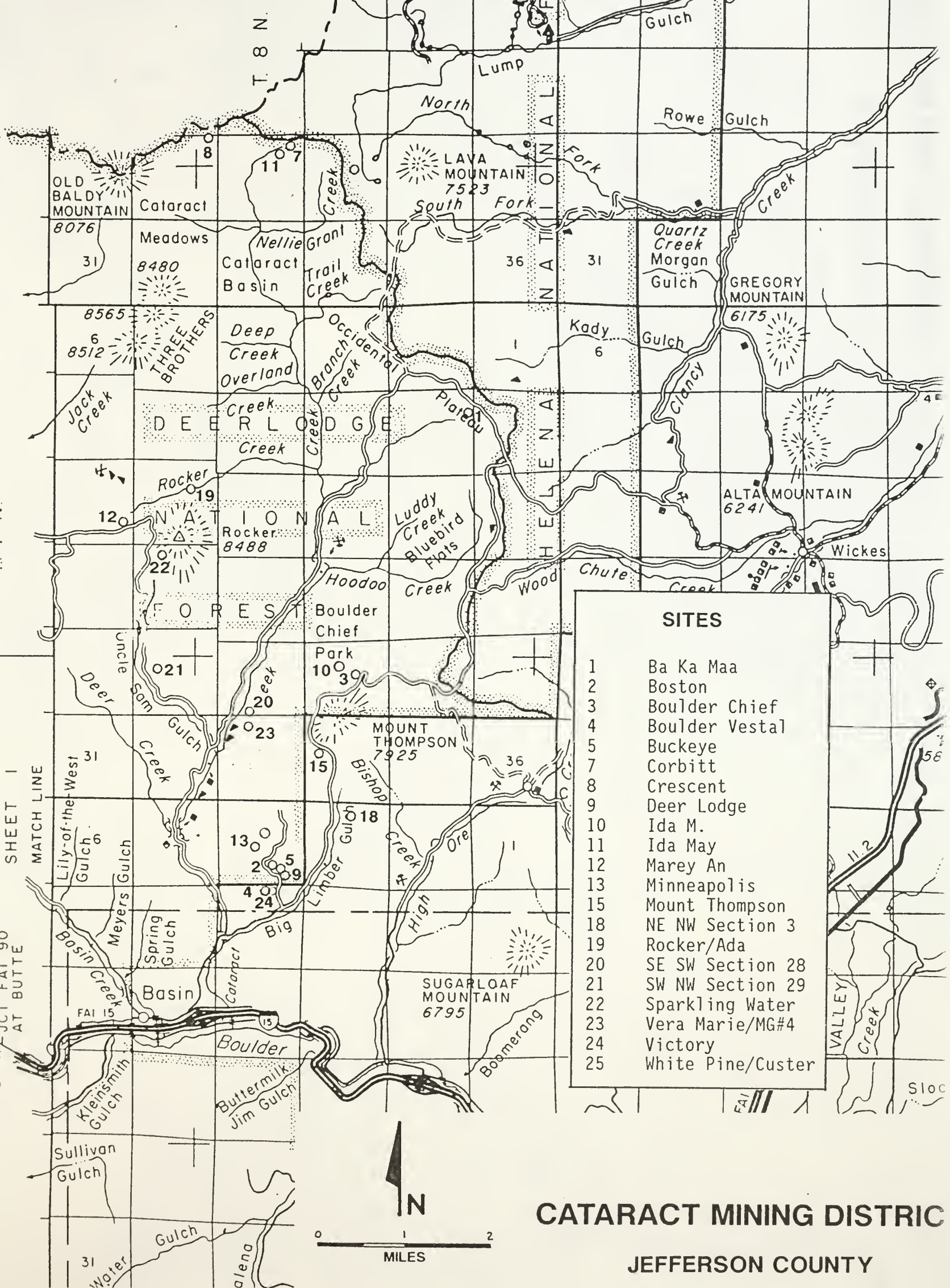
HAZARD MAP

BOULDER DISTRICT



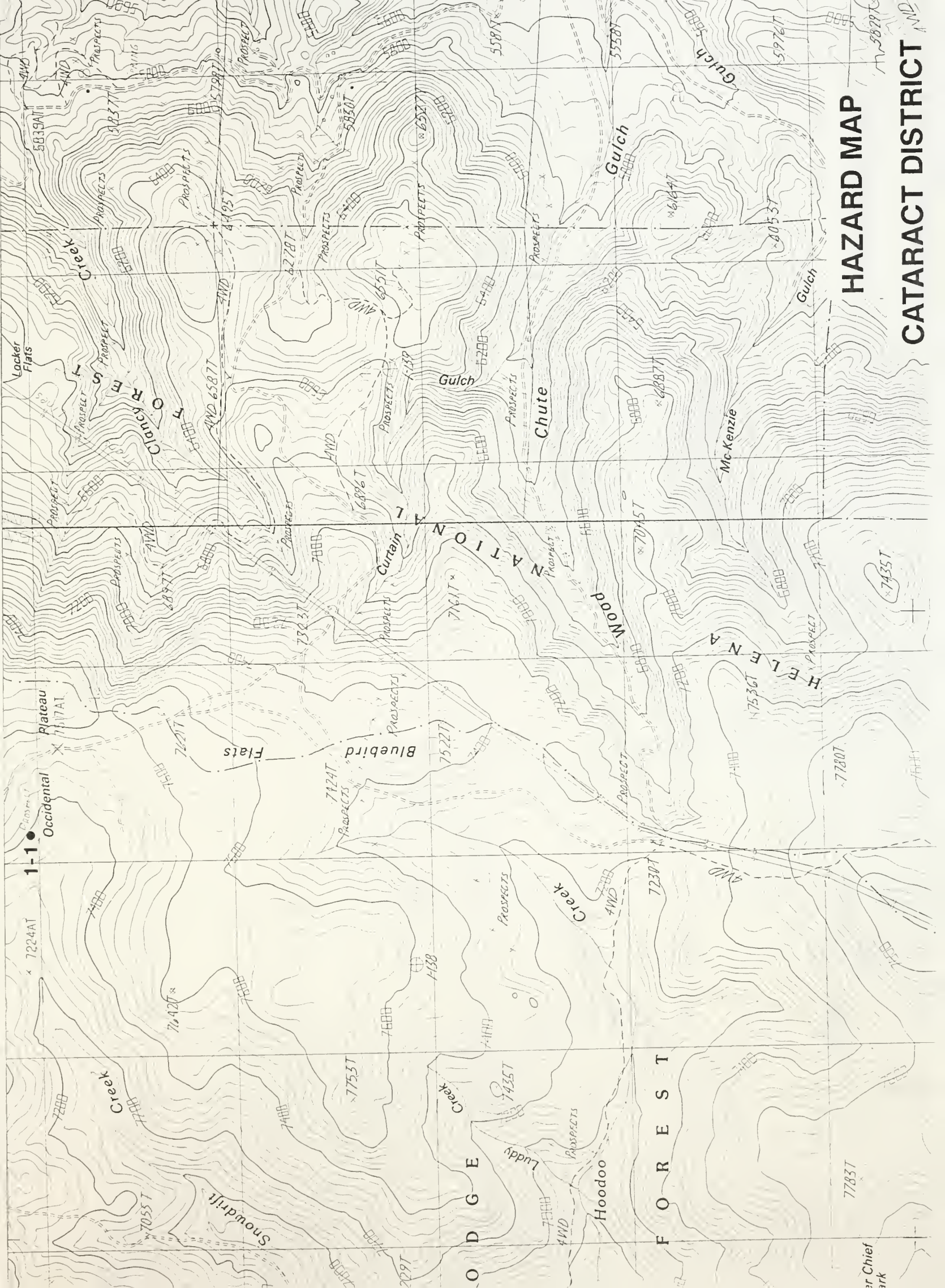
HAZARD MAP BOULDER DISTRICT





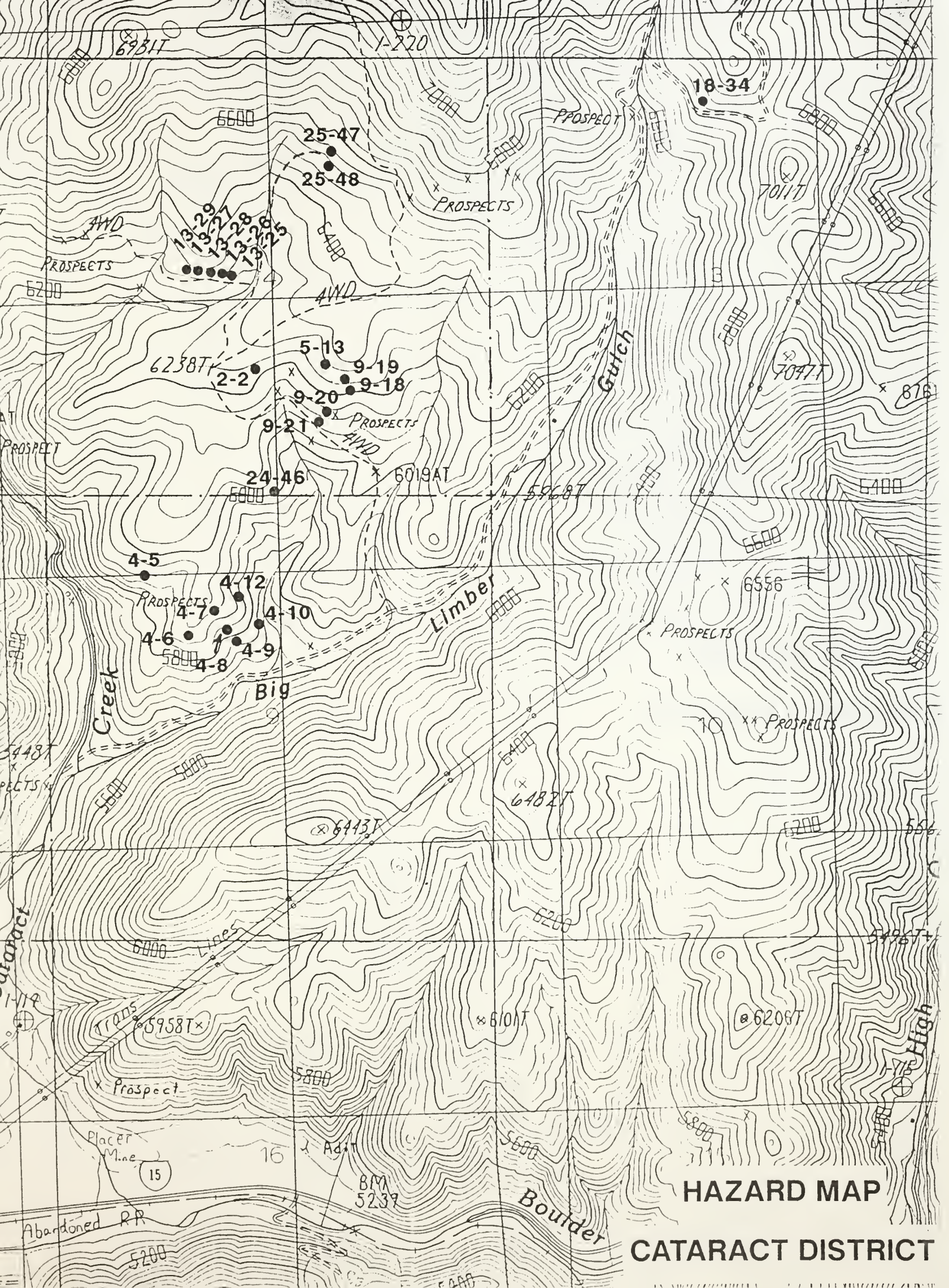
CATARACT MINING DISTRICT

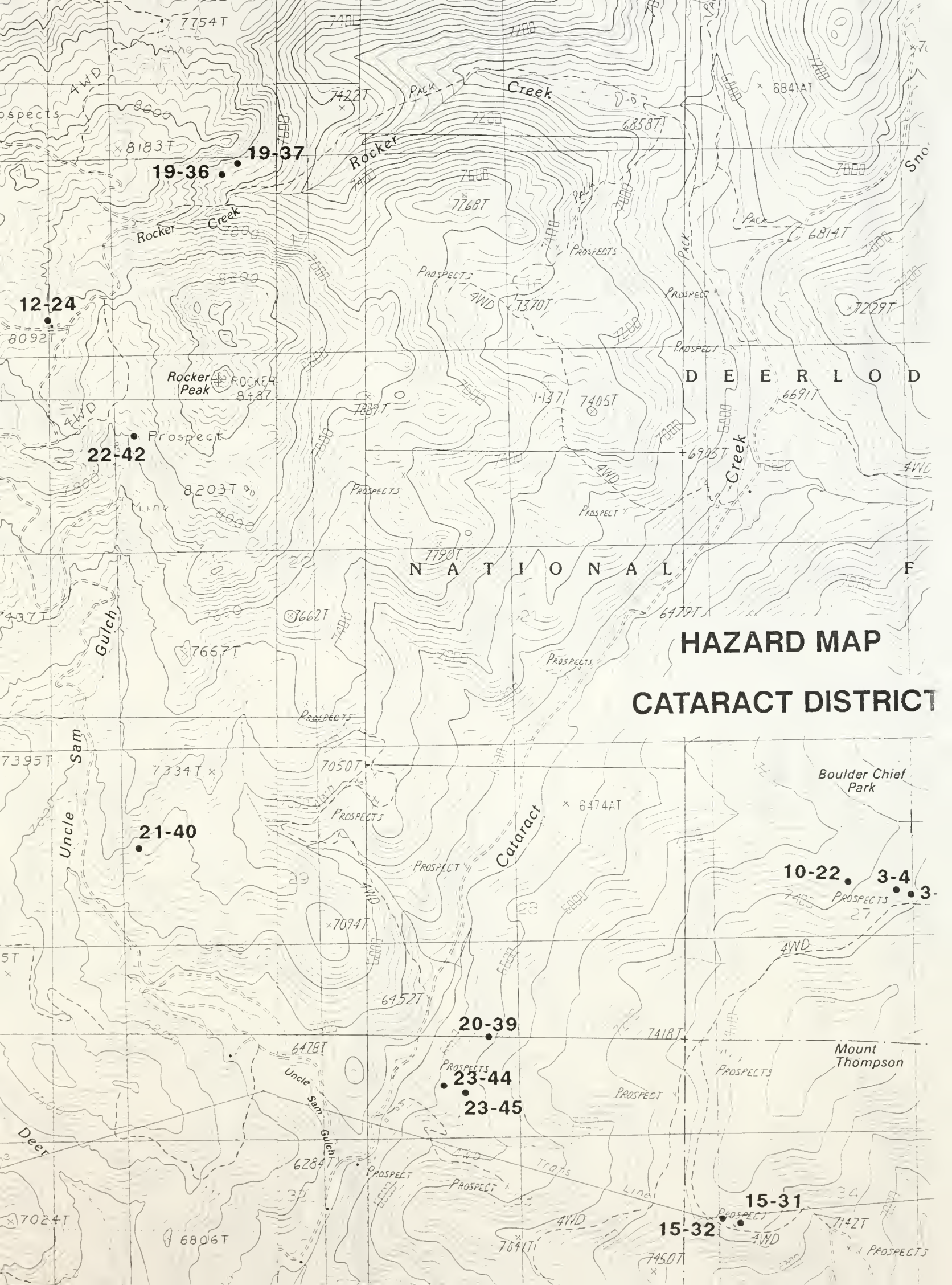
JEFFERSON COUNTY

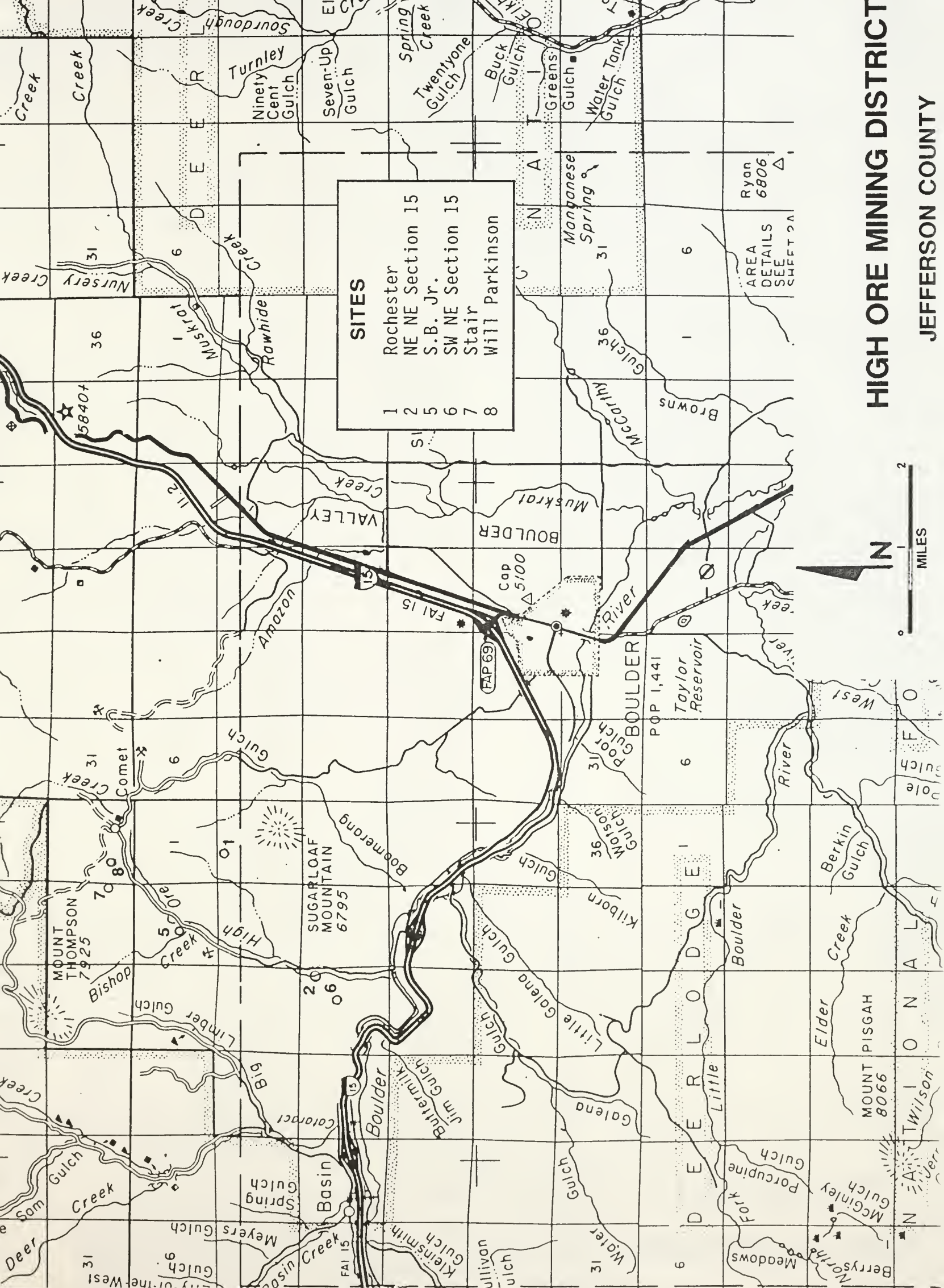


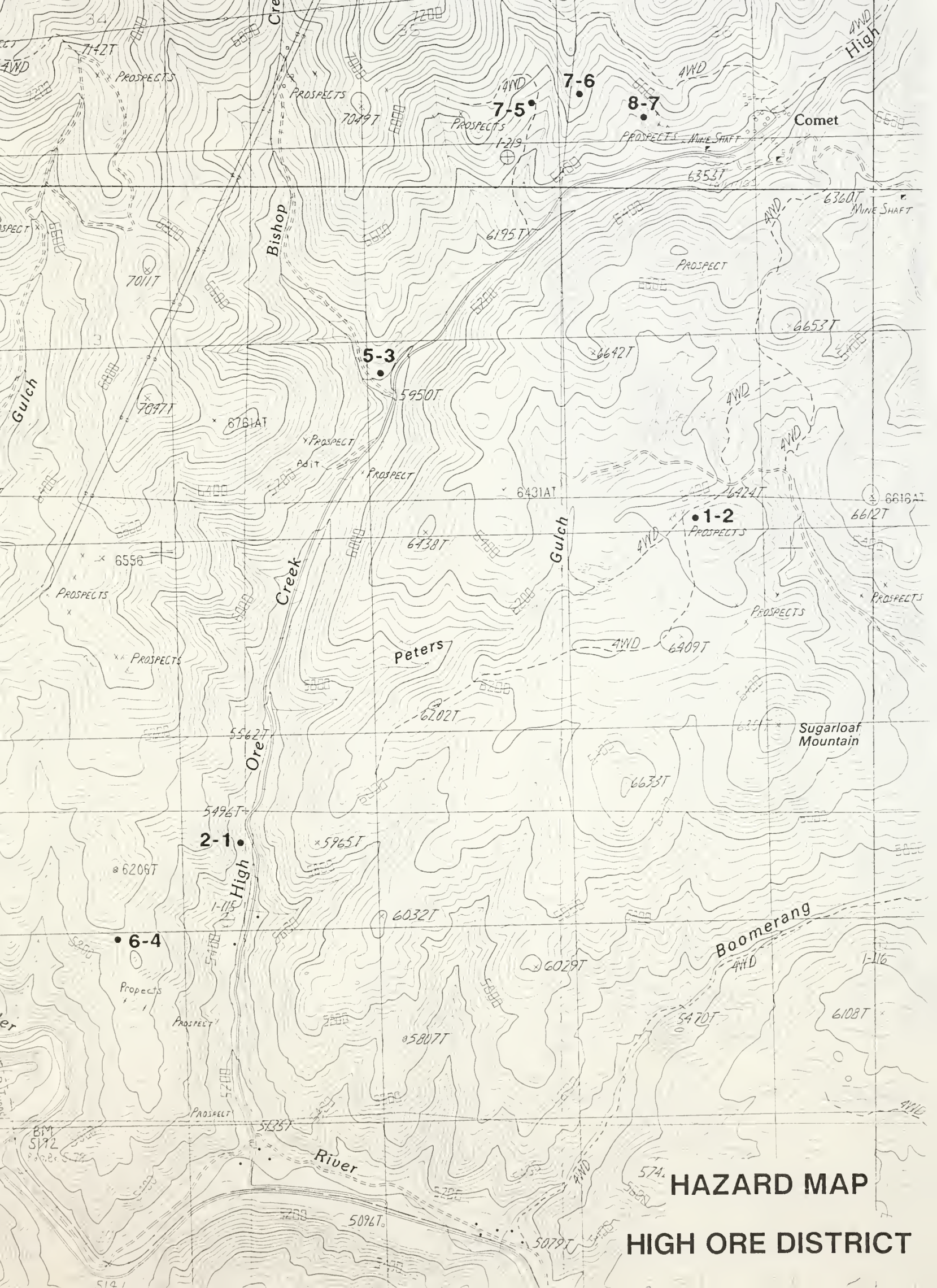
HAZARD MAP

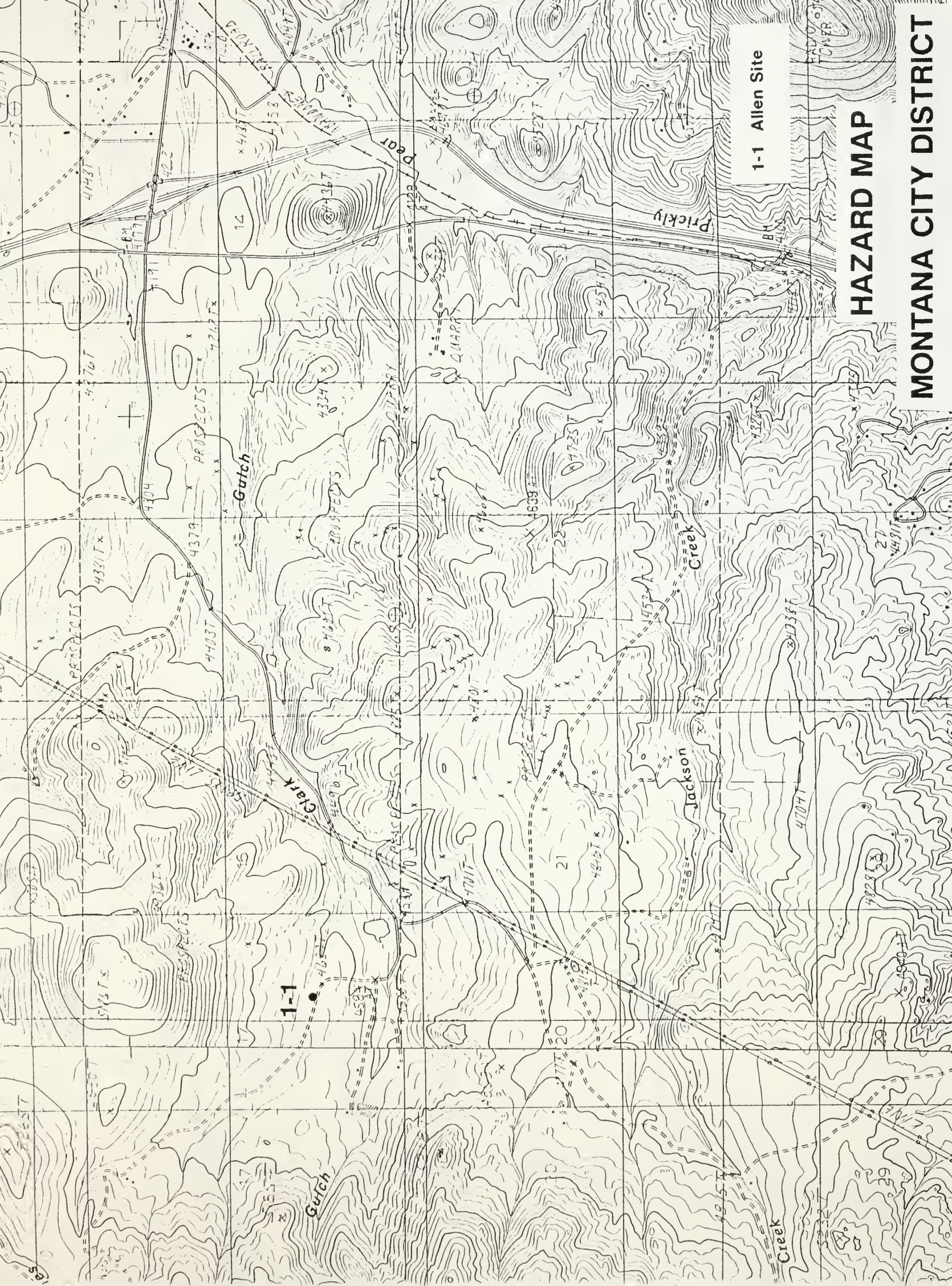
CATARACT DISTRICT







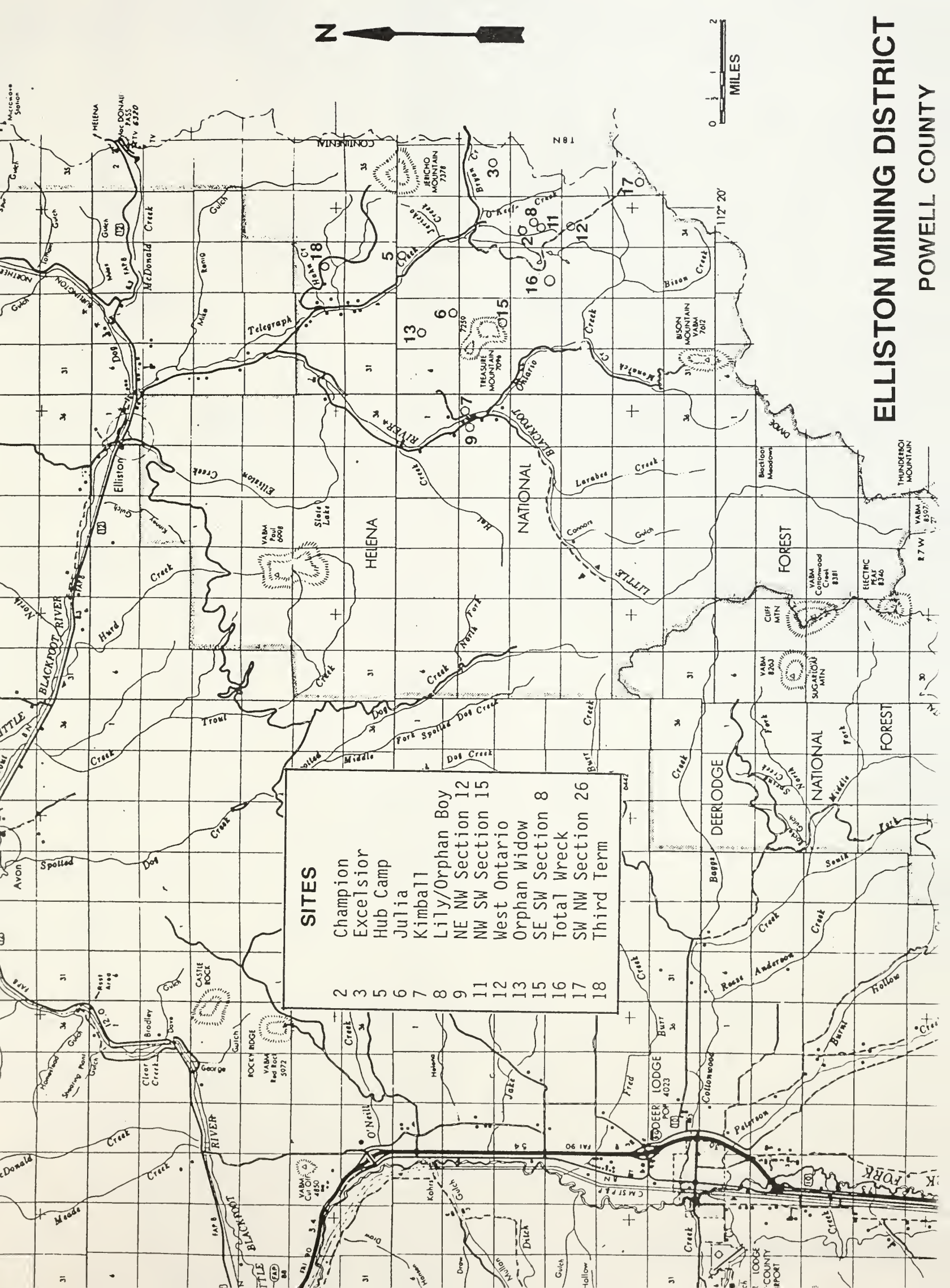




1-1 Allen Site

HAZARD MAP

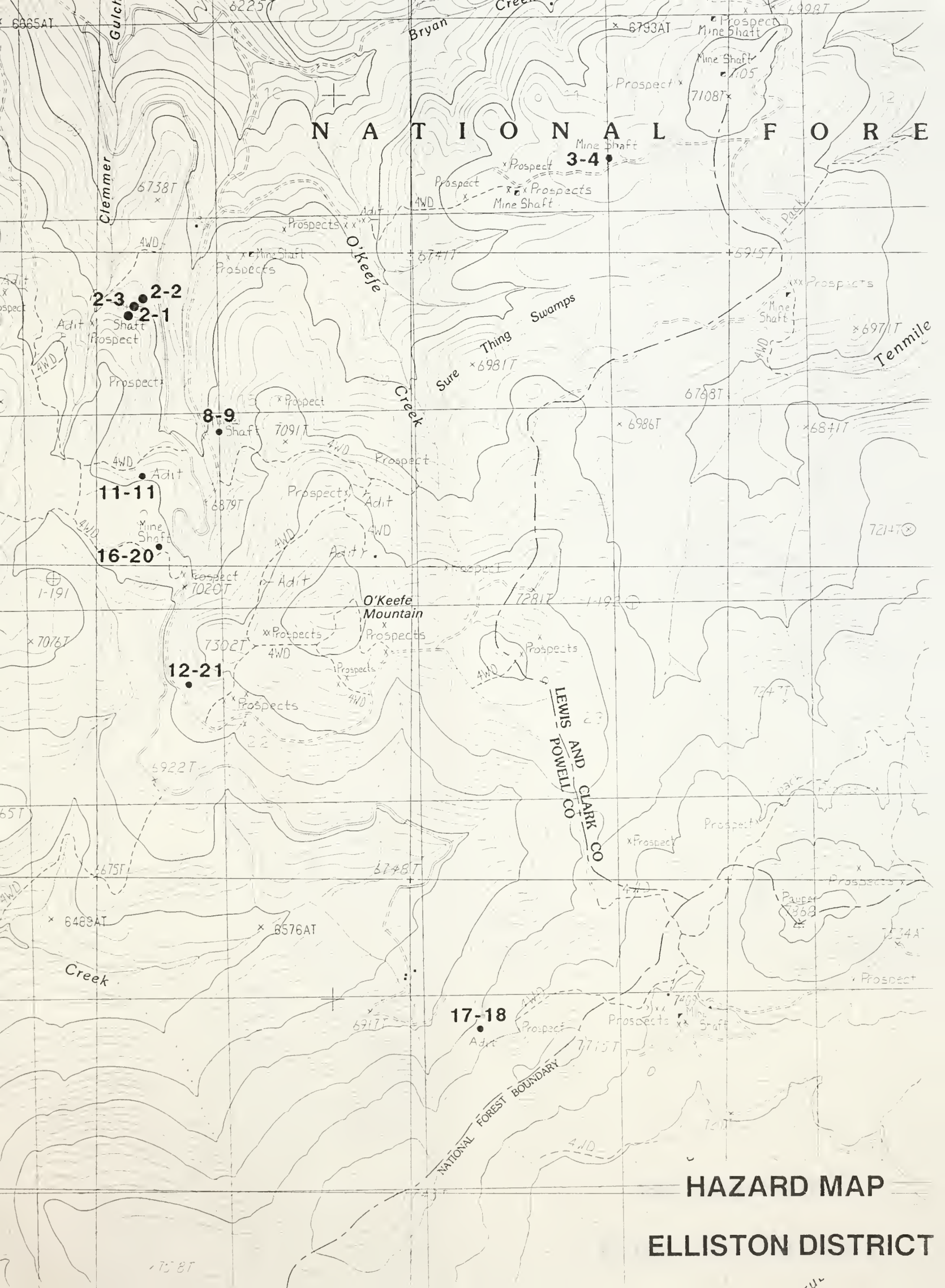
MONTANA CITY DISTRICT



SITES

- Champion
- Excelsior
- Hub Camp
- Julia
- Kimball
- Lily/Orphan Boy
- NE NW Section 12
- NW SW Section 15
- West Ontario
- Orphan Widow
- SE SW Section 8
- Total Wreck
- SW NW Section 26
- Third Term

- 2
- 3
- 5
- 6
- 7
- 8
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- 11
- 12
- 13
- 15
- 16
- 17
- 18





HAZARD MAP
ELLISTON DISTRICT

APPENDIX B
BID TABULATIONS

BID TABULATIONS				ENGINEER'S ESTIMATE		Scott Construction Inc.	O'Neill Contracting, Inc.	Big Sky Asphalt Co.	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price				
1.	1.0	LS	Mobilization	3,100.00	3,100.00	1,950.00	15,000.00	21,875.00	21,875.00
2.	8,250	CY	Backfilling mine openings	5.00	41,250.00	3,75	4.40	5.00	41,250.00
3.	12	EA	Blast/Collapsing mine openings	500.00	6,000.00	245.00	250.00	625.00	7,500.00
4.	5	EA	Steel Gate Adit Door	1,600.00	8,000.00	1,250.00	200.00	2,000.00	10,000.00
5.	15	EA	Adit and Shaft Culverts	1,500.00	22,500.00	1,300.00	960.00	1,600.00	24,000.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	400.00	800.00	900.00	2,700.00
7.	15	EA	Steel Grate Systems	2,100.00	31,500.00	1,600.00	1,460.00	2,400.00	36,000.00
8.	60	EA	Attaching Permanent Owner-Provided Signs	30.00	1,800.00	15.00	25.00	40.00	2,400.00
9.	5,575	LF	Farm Fence (Type F-5)	5.00	27,875.00	4.85	4.50	5.00	27,875.00
10.	1.0	LS	Miscellaneous Site Work	2,500.00	2,500.00	1,750.00	6,700.00	3,000.00	3,000.00
TOTAL FOR PHASE 27					146,775.00	116,466.25	131,037.50		176,600.00

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HAZARDOUS MINE OPENING PROJECT 27
JEFFERSON AND POWELL COUNTIES, MONTANA

DSL/AMRB 90-021
DATE NOVEMBER 8, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		Sharbono Construction		Hallett Reclamation Co		Shumaker Trucking & Excavating	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1.0	LS	Mobilization	3,100.00	3,100.00	3,500.00	14,412.00	15,000.00	14,412.00	15,000.00	15,000.00
2.	8,250	CY	Backfilling mine openings	5.00	41,250.00	3.40	28,050.00	5.00	21,532.50	5.00	41,250.00
3.	12	EA	Blast/Collapsing mine openings	500.00	6,000.00	300.00	3,600.00	750.00	1,875.24	750.00	9,000.00
4.	5	EA	Steel Gate Adit Door	1,600.00	8,000.00	1,450.00	7,250.00	1,500.00	8,484.05	1,500.00	7,500.00
5.	15	EA	Adit and Shaft Culverts	1,500.00	22,500.00	1,500.00	22,500.00	1,500.00	61,432.05	1,500.00	22,500.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	750.00	2,250.00	1,000.00	7,140.27	1,000.00	3,000.00
7.	15	EA	Steel Gate Systems	2,100.00	31,500.00	1,800.00	27,000.00	3,500.00	46,931.40	3,500.00	52,500.00
8.	60	EA	Attaching Permanent Owner-Provided Signs	30.00	1,800.00	35.00	2,100.00	30.00	945.00	30.00	1,800.00
9.	5,575	LF	Farm Fence (Type F-5)	5.00	27,875.00	6.00	33,450.00	5.50	8,975.75	5.50	30,662.50
10.	1.0	LS	Miscellaneous Site Work	2,500.00	2,500.00	2,500.00	2,500.00	10,000.00	15,618.00	10,000.00	10,000.00
TOTAL FOR PHASE 27					146,775.00		132,200.00		187,346.26		193,212.50

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HAZARDOUS MINE OPENING PROJECT 27
JEFFERSON AND POWELL COUNTIES, MONTANA

DSL/AMRB 90-021
DATE NOVEMBER 8, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		Swan & Sons Construction	J & L Construction	Bozeman Sand & Gravel	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price				
1.	1.0	LS	Mobilization	3,100.00	3,100.00	32,000.00	5,000.00	17,500.00	17,500.00
2.	8,250	CY	Backfilling mine openings	5.00	41,250.00	3.75	30,937.50	4.85	40,012.50
3.	12	EA	Blast/Collapsing mine openings	500.00	6,000.00	1,000.00	12,000.00	665.00	5,820.00
4.	5	EA	Steel Gate Adit Door	1,600.00	8,000.00	350.00	1,750.00	665.00	3,325.00
5.	15	EA	Adit and Shaft Culverts	1,500.00	22,500.00	780.00	11,700.00	1,339.00	20,085.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	150.00	450.00	598.00	1,794.00
7.	15	EA	Steel Grate Systems	2,100.00	31,500.00	1,300.00	19,500.00	2,500.00	37,500.00
8.	60	EA	Attaching Permanent Owner-Provided Signs	30.00	1,800.00	45.00	2,700.00	35.00	2,100.00
9.	5,575	LF	Farm Fence (Type F-5)	5.00	27,875.00	4.35	24,251.25	5.95	33,171.25
10.	1.0	LS	Miscellaneous Site Work	2,500.00	2,500.00	10,000.00	10,000.00	1,500.00	1,500.00
TOTAL FOR PHASE 27					146,775.00		145,288.75		162,807.75

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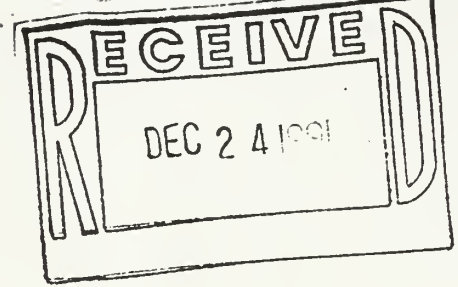
HAZARDOUS MINE OPENING PROJECT 27
JEFFERSON AND POWELL COUNTIES, MONTANA

DSL/AMRB 90-021
DATE NOVEMBER 8, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		Coneman Construction Inc.			
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price				
1.	1.0	LS	Mobilization	3,100.00	3,100.00	5,000.00	5,000.00	0.00	0.00
2.	8,250	CY	Backfilling mine openings	5.00	41,250.00	7.00	57,750.00	0.00	0.00
3.	12	EA	Blast/Collapsing mine openings	500.00	6,000.00	300.00	3,600.00	0.00	0.00
4.	5	EA	Steel Gate Adit Door	1,600.00	8,000.00	1,500.00	7,500.00	0.00	0.00
5.	15	EA	Adit and Shaft Culverts	1,500.00	22,500.00	1,800.00	27,000.00	0.00	0.00
6.	3	EA	Cable Net Mine Closure	750.00	2,250.00	500.00	1,500.00	0.00	0.00
7.	15	EA	Steel Grate Systems	2,100.00	31,500.00	2,780.00	41,700.00	0.00	0.00
8.	60	EA	Attaching Permanent Owner-Provided Signs	30.00	1,800.00	30.00	1,800.00	0.00	0.00
9.	5,575	LF	Farm Fence (Type F-5)	5.00	27,875.00	5.00	27,875.00	0.00	0.00
10.	1.0	LS	Miscellaneous Site Work	2,500.00	2,500.00	1,645.00	1,645.00	0.00	0.00
TOTAL FOR PHASE 27					146,775.00		175,370.00	0.00	0.00

G:\RECLAM\AMRB\PHASE-27.BID

APPENDIX C
KEY RECEIPT ACKNOWLEDGEMENTS



I hereby acknowledge receipt of keys to the lock on the culvert installed at the following abandoned mine project site:

Basin Mining District
Boulder Site # 2-10
NE NE Section 13, T6N, R6W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Ardis L. Bragg 12-23-91
Name Date

Witness Date

I hereby acknowledge receipt of keys to the lock on the culvert installed at the following abandoned mine project site:

Basin Mining District
NW SW Section 7 Site # 11-22
NW SW Section 7, T7N, R5W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

G L Halshue

Name

Dec 27 1990

Date

Dorothy Halshue

Witness

Dec. 27 - 1990

Date

I hereby acknowledge receipt of keys to the locks on the culvert installed at the following abandoned mine project site:

Basin Mining District
SW SE Section 1 Site # 15-32
SW SE Section 1, T6N, R6W
Jefferson County, MT

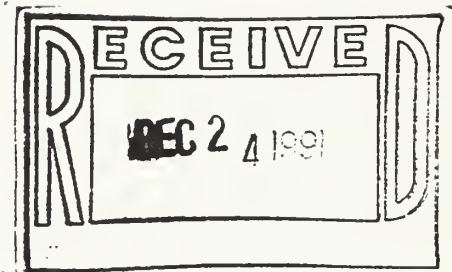
These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Wayne Turkia 1/1/92
Name Date

Witness Date



I hereby acknowledge receipt of keys to the locks on the steel grates and culvert installed at the following abandoned mine project sites:

Boulder Mining District
NE NW Section 15 Sites #'s 5-3, 5-4, 5-5, & 5-6
NE NW Section 15, T4N, R2W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Tom Carey Cattle Co

Name

12-22-91

Date

Helen M Carey

Witness

12-22-91

Date

I hereby acknowledge receipt of keys to the lock on the steel grate installed at the following abandoned mine project site:

Boulder Mining District
SW SW Section 24 Site # 8-9
SW SW Section 24, T5N, R3W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

John D. Schiavone 12-24-91
Name Date

Witness Date

I hereby acknowledge receipt of keys to the lock on the steel grate installed at the following abandoned mine project site:

Cataract Mining District
Marey An Site # 12-24
SE SE Section 18, T7N, R5W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

Mareyan mine

Name Robert Wood Pres. Date Dec 27, 97

Witness

Date _____

Cataract Mining District
Victory Site # 24-46
NW NE Section 9, T6N, R5W
Jefferson County, MT

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

George D. McCaffrey
Name Date Dec. 27-1991

Date _____


I hereby acknowledge receipt of keys to the lock on the culvert installed at the following abandoned mine project site:

High Ore Mining District
S.B. Jr. Site # 5-3
NE SW Section 2, T6N, R5W
Jefferson County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.

 11/23/92

Name Nolan Smith Date

NORTH LILY MINING CO.
P.O. BOX 2005
PHILIPSBURG, MT 59858

 1-23-92

Witness Date

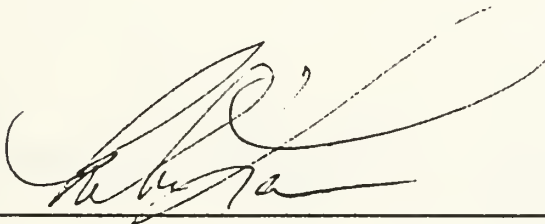
I hereby acknowledge receipt of keys to the lock on the steel grate installed at the following abandoned mine project site:

Elliston Mining District
Excelsior Site # 3-4
NW SE Section 11, T8N, R6W
Powell County, MT

These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.



30 March 1992

Name

Date

Witness

Date

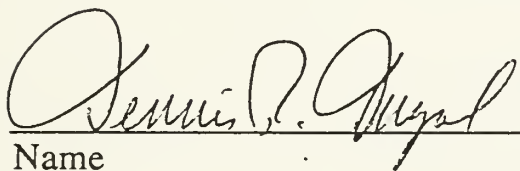
I hereby acknowledge receipt of keys to the lock on the culvert installed at the following abandoned mine project site:

Elliston Mining District
Kimball Site #7-8
NW NE Section 12, T8N, R7W
Powell County, MT

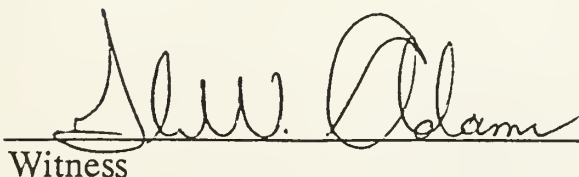
These protective measures were installed by the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, at the landowner's request, so that future access to the underground workings would be possible.

The Department of State Lands and its contractors make no warranties, either expressed or implied, concerning the safety or useability of the underground mine workings of the sites mentioned above. The undersigned understands that entry into the underground mine workings without provision for proper air is the responsibility of the undersigned.

I certify that I have read, understand, and concur with the statements made on this page.


Name

12/21/91
Date


Witness

1/7/92
Date

APPENDIX D
CHANGE ORDERS

RECEIVED**CHANGE ORDER**

OCT 22 1991

STATE LANDSORDER NO. 1PROJECT TITLE: Hazardous Mine Opening Project 27MONT A/E or DSL-AMRB: 90-021CONTRACT DATE: May 17, 1991OWNER: Montana Department of State Lands/Abandoned Mine Reclamation BureauCONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Basin/NW SW Section 7 site #11-22 Delete: Cable net Add: Culvert					400.00 1300.00	900.00
2.	Cataract/Boulder Chief Site 3-4 Delete: Culvert					1300.00	1300.00
3.	Elliston/TotalWreck site #16-20 Delete: 80 L.F. farm fence 1 Hazard sign Add: 10'x10' steel grate					388.00 15.00 1600.00	1197.00
4.	Boulder/SW SW Sec 6 site #6-16 Delete: Fence 120 L.F. 1 Hazard sign					582.00 15.00	597.00
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							200.00
OVERHEAD & PROFIT @ ____ %							included
GRAND TOTAL - THIS CHANGE ORDER							200.00

Original Contract Price	116,466.25
Current Contract Price Adjusted by Previous Change Order	-0-
Cost this Change Order (+ or -)	200.00
New Contract Price including this Change Order	116,666.25

The completion date as set forth in the Contract Documents shall be (~~unchanged~~, increased, decreased) by 1 calendar days.

The date for completion of all work will be November 25, 1991.

Description and Justification for Change:

1. Fractured, unstable and overhanging rock in portal area.
2. Natural abatement.
3. Recommended by DSL representative Mr. Ed Gensler due to high recreational use of area.
4. Natural abatement.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$ 200 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$ 200 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

Elynn Insurance Co. Transamerica Premier Ins
Gordon DMSManner By: [Signature]
Seal

Recommended by: [Signature] 10/21/91
Engineer Date

Accepted by: [Signature] 10-17-91
Contractor Date

Approved by: [Signature] 10-24-91
Owner Date

CHANGE ORDER

ORDER NO. 2

PROJECT TITLE: Hazardous Mine Opening Project 27

MONT A/E or DSL-AMRB: 90-021

CONTRACT DATE: May 17, 1991

OWNER: Montana Department of State Lands/Abandoned Mine Reclamation Bureau

CONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	High Ore/S.B. Jr. Site #5-3 Delete: Cable net Add: Culvert					<400.00> 1300.00	900.00
2.	Montana City/Allen Residence Lump Sum backfill of three sites. Add:					150.00	150.00
3.	Elliston/Kimbal Site #7-8 Delete: Cable Net Add: Culvert					<400.00> 1300.00	900.00
4.	Cataract/Rocker Ada Site #19-37 Delete: Blast					<245.00>	<245.00>
5.	Cataract/Sparkling Water #22-42 Delete: Culvert					<1300.00>	<1300.00>
6.	Cataract/Victory- QM3 #24-46 Delete: Specialty Grate Materials					<1050.00>	<1050.00>
7.	Basin/Porphyry #13-26 Delete: 16 cy Backfill Add: Culvert					<60.00> 1300.00	1240.00
8.	Cataract/Boulder Vestal #4-5 Delete: Adit Gate Add: Culvert					<1250.00> 1300.00	50.00
9.	Cataract/Boulder Vestal #4-10 Delete: Adit Gate Add: Culvert					<1250.00> 1300.00	50.00
10.	Cataract/SESW Sec. 28 #20-39 Delete: Adit Gate Add: Culvert					<1250.00> 1300.00	50.00
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							745.00
OVERHEAD & PROFIT @ <u> </u> %							Included
GRAND TOTAL - THIS CHANGE ORDER							745.00

Original Contract Price	116,466.25
Current Contract Price Adjusted by Previous Change Order	116,666.25
Cost this Change Order (+ or -)	745.00
New Contract Price including this Change Order	117,411.25

The completion date as set forth in the Contract Documents shall be (~~unchanged~~, increased, decreased) by 1 calendar days.

The date for completion of all work will be Will Be Determined in 1992.

Description and Justification for Change:

1. Fractured, unstable or overhanging rock in portal area.
2. Requested services.
3. Fractured, unstable or overhanging rock in portal area.
4. Natural abatement.
5. Natural abatement.
6. Specialty grate materials sold to contractor.
7. Directive issued by new owner.
8. Fractured, unstable or overhanging rock in portal area.
9. Fractured, unstable or overhanging rock in portal area.
10. Fractured, unstable or overhanging rock in portal area.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by \$_____ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by \$_____ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

Gordon D. McManus, Transamerica Surety Co.
Flynn Insurance Ag By: [Signature]
P.O. Box 1256 Helena MT Seal

Recommended by: [Signature] Engineer Date

Accepted by: [Signature] Contractor Date 1-10-92

Approved by: [Signature] Owner Date 1-21-92

CHANGE ORDER FINAL PAY REQUEST RECONCILIATION

ORDER NO. 3

PROJECT TITLE: Hazardous Mine Opening Project 27

MONT A/E or DSL-AMRB: 90-021

CONTRACT DATE: May 17, 1991

OWNER: Montana Department of State Lands/Abandoned Mine Reclamation Bureau

CONTRACTOR: Scott Construction, Inc., P.O. Box 777, East Helena, MT 59635

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
	Reconciliation						
2.	Backfilling Mine Openings Orig. Cont. Qty. 8250 cy Delete by C.O. 16 cy Adj. Orig. Qty. 8234 cy						
	Actual Qty. 8817 cy Less Adj. Orig. Qty. 8234 cy 583 cy					3.75	2186.25
9.	Farm Fence (Type F-5) Orig. Cont. Qty. 5575 L.F. Del. by C.O. 200 L.F. Adj. Orig. Qty. 5375 L.F. Actual Qty Installed 5276 L.F. <99>					4.85	<480.15>
8.	Attaching Owner-Provided Signs Orig. Cont. Qty. 60 Del. by C.O. 2 Adj. Cont. Qty. 58 Actual Inst. 22 <36>					15.00	<540.00>
7.	Steel grate system Delete: Cataract/Crescent #8-17					<1600>	<1600>
TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.							<433.90>
OVERHEAD & PROFIT @ ____%							included
GRAND TOTAL - THIS CHANGE ORDER							<433.90>

Original Contract Price	<u>116,466.25</u>
Current Contract Price Adjusted by Previous Change Order	<u>117,411.25</u>
Cost this Change Order (+ or -)	<u><433.90></u>
New Contract Price including this Change Order	<u>116,977.35</u>

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by -0- calendar days.

The date for completion of all work will be June 1, 1992.

Description and Justification for Change:

1. Reconciliation of Plan vs Actual Quantities for Backfill.
2. Reconciliation of Plan vs Actual Quantities for Fence.
3. Reconciliation of Plan vs Actual Quantities for Hazard Signs.
4. Natural abatement.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds Is hereby Increased by \$_____ (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds Is hereby increased by \$_____ (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

SURETY

FLYNN INSURANCE AGENCY

TRANSAMERICA PREMIER INSURANCE COMPANY

John D. McManus

By: John D. Leaf
JOHN D. LEAF Seal

Recommended by: Jeremiah B. Bousser 6/23/92
Engineer Date

Accepted by: Patti Scott, Pres. Scott Const - Inc 6-10-92
Contractor Date

Approved by: Bonnie Louelace 6-24-92
Owner Date

APPENDIX E

**APPROVED PAYMENT REQUESTS, CERTIFICATES OF SUBSTANTIAL
COMPLETION, AND AFFIDAVIT ON BEHALF OF CONTRACTOR**

RECEIVED

OCT 22 1991

PAYMENT REQUEST NO. 1

STATE LANDS

FROM 8-19-91 TO 10-5-91

PROJECT TITLE: Hazardous Mine Opening Project 27

LOCATION: Jefferson & Powell Counties, MT MONT A/E or DSL-AMRB: 90-021

NAME OF CONTRACTOR: Scott Construction, Inc.

ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$116,466.25

Change Order No. 1

\$ 200.00

Change Order No.

\$

Change Order No.

\$

Amount of Approved Change Order(s)

\$ 200.00

TOTAL CONTRACT AMOUNT

\$116,666.25

Pay Request No.	Amount of Request
1	\$61,919.25 55,727.33 mbl

Total Contract Amount Completed to Date

\$61,919.25

Less Retainage (10 %)

\$6,191.92

TOTAL AMOUNT EARNED TO DATE

\$55,727.33

Less Previous Payments

-0-

AMOUNT DUE THIS PAYMENT

\$55,727.33

Less 1% Tax

\$557.27

TOTAL DUE CONTRACTOR

\$55,170.06

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.

Contractor

Dept. of State Lands, Abandoned Mine Reclamation Bureau

Owner

By Patricia Scott, Pres.

Date 10-17-91

RECOMMENDED BY:

By Edward E. Gensle, Acting Bureau Chief

Date Oct 24, 1991

Chen-Northern, Inc.

Engineer

By Darwin B. Bowser

Date 10/21/91

**WORK COMPLETED
ORIGINAL CONTRACT**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1.0	LS	-0-	1.0	1.0	1,950.00	1,950.00
2.	Backfilling Mine Openings	8,250 cy	3.75	-0-	7,013 cy	7,013 cy	26,298.75	26,298.75
3.	Blasting/Collapsing Mine Openings	12	245.00	-0-	5	5	1,225.00	1,225.00
4.	Steel Gate Adit Door	5	1,250.00	-0-	-0-	-0-	-0-	-0-
5.	Adit and Shaft Culverts	15	1,300.00	-0-	4	4	5,200.00	5,200.00
6.	Cable Net Mine Closure	3	400.00	-0-	-0-	-0-	-0-	-0-
7.	Steel Gate System	15	1,600.00	-0-	3	3	4,800.00	4,800.00
8.	Attaching Permanent Owner Provided Signs	60	15.00	-0-	-0-	-0-	-0-	-0-
9.	Farm Fence (Type F-5)	5575	4.85	-0-	4,030	-0-	19,545.50	19,545.50
10.	Miscellaneous Site Work	1	LS	-0-	-0-	-0-	-0-	-0-
	Subtotal							59,019.25
	Change Order #1							2,900.00
	Materials on Site (Attach Schedule)	-	-	\$	\$	— >	\$	\$
TOTAL							\$61,919.25	\$61,919.25

CHANGE ORDER WORK COMPLETED

[illegible]

RECEIVED

PAYMENT REQUEST NO. 2

JAN 18 1992

FROM 10-6-91 TO 1-2-92

STATE LANDS

PROJECT TITLE: Hazardous Mine Opening Project 27LOCATION: Jefferson & Powell Counties, MT MONT A/E or DSL-AMRB: 90-021NAME OF CONTRACTOR: Scott Construction, Inc.ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract

\$116,466.25

Change Order No. 1\$ 200.00Change Order No. 2\$ 745.00

Change Order No. _____

\$ _____

Amount of Approved Change Order(s)

\$ 945.00

TOTAL CONTRACT AMOUNT

\$ 117,411.25

Pay Request No.	Amount of Request
1	\$55,727.33
2	\$55,839.02

Total Contract Amount Completed to Date

\$114,162.35

Less Retainage (10 %)

\$2,596.00 11,416.35

TOTAL AMOUNT EARNED TO DATE

\$111,566.35 102,74

Less Previous Payments

\$55,727.33

AMOUNT DUE THIS PAYMENT

\$55,839.02 47,018

Less 1% Tax

\$558.39 470.1

TOTAL DUE CONTRACTOR

\$55,280.63 46,547

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.

Contractor

Dept. of State Lands, Abandoned Mine Reclamation Bureau

Owner

By Pattie Scott, PresBy Bonnie LovelaceDate 1-13-92Date 1-21-92

RECOMMENDED BY:

Chen-Northern, Inc.

Engineer

By Jeremiah B. BroussardDate 1/12/92

**WORK COMPLETED
ORIGINAL CONTRACT**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1.0	LS	1.0	-0-	1.0	1,950.00	-0-
2.	Backfilling Mine Openings	8,250 cy	3.75	7,013 cy	1,804 cy	8,817 cy	33,063.75	6,765.00
3.	Blasting/Collapsing Mine Openings	12	245.00	5	5	10	2,450.00	1,225.00
4.	Steel Gate Adit Door	5	1,250.00	-0-	2	2	2,500.00	2,500.00
5.	Adit and Shaft Culverts	15	1,300.00	4	9	13	16,900.00	11,700.00
6.	Cable Net Mine Closure	3	400.00	-0-	-0-	-0-	-0-	-0-
7.	Steel Gate System	15	1,600.00	3	10	13	20,800.00	16,000.00
8.	Attaching Permanent Owner Provided Signs	60	15.00	-0-	10	10	150.00	150.00
9.	Farm Fence (Type F-5)	5575	4.85	4030	1,246	5276	25,588.60	6,043.10
10.	Miscellaneous Site Work	1	LS	-0-	-0-	-0-	-0-	-0-
	Subtotal						103,402.35	44,383.10
	Change Order #1						2,900.00	-0-
	Change Order #2						6,900.00	6,900.00
	Materials on Site (Attach Schedule)	--	--	\$	\$	→	\$960.00	\$960.00
TOTAL							\$114,162.35	\$52,243.10

•

CHANGE ORDER WORK COMPLETED

[illegible]

PAYMENT REQUEST NO. 3

FROM 1-3-92 TO 5-31-92

PROJECT TITLE: Hazardous Mine Opening Project 27

LOCATION: Jefferson & Powell Counties, MT MONT A/E or DSL-AMRB: 90-021

NAME OF CONTRACTOR: Scott Construction, Inc.

ADDRESS: P.O. Box 777, East Helena, MT 59635

SUMMARY OF PROJECT STATUS

Amount of Original Contract		\$116,466.25
Change Order No. <u>1</u>	\$ 200.00	
Change Order No. <u>2</u>	\$ 745.00	
Change Order No. <u>3</u>	\$ <433.90>	
Amount of Approved Change Order(s)		\$ 511.10
TOTAL CONTRACT AMOUNT		\$116,977.35

Pay Request No.	Amount of Request
1	\$ 55,727.33
2	\$ 47,018.76
3	\$ 14,231.26
	\$ 116,977.35

Total Contract Amount Completed to Date	\$116,977.35
Less Retainage (<u>0</u> %)	\$ 0
TOTAL AMOUNT EARNED TO DATE	\$116,977.35
Less Previous Payments	\$102,746.09
AMOUNT DUE THIS PAYMENT	\$ 14,231.26
Less 1% Tax	\$ 142.31
TOTAL DUE CONTRACTOR	\$ 14,088.95

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

APPROVED BY:

Scott Construction, Inc.

Dept. of State Lands, Abandoned Mine Reclamation
Bureau

Contractor

By Patti Scott, Pres

Owner

dyjc 6/23/92

Date 6-10-92

By Bonnie Lovelace

RECOMMENDED BY:

Date 6-24-92

Chen-Northern, Inc.

Engineer

By Jeremiah B. Bousser

Date 6/22/92

**WORK COMPLETED
ORIGINAL CONTRACT**

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed To Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1.0	LS	1.0	-0-	1.0	1,950.00	-0-
2.	Backfilling Mine Openings	8,250 cy	3.75	8817 cy	-0-	8,817 cy	33,063.75	-0-
3.	Blasting/Collapsing Mine Openings	12	245.00	10	1	11	2,695.00	245.00
4.	Steel Gate Adit Door	5	1,250.00	2	-0-	2	2,500.00	-0-
5.	Adit and Shaft Culverts	15	1,300.00	13	-0-	13	16,900.00	-0-
6.	Cable Net Mine Closure	3	400.00	-0-	-0-	-0-	-0-	-0-
7.	Steel Grate System	15	1,600.00	13	1	14	22,400.00	1,600.00
8.	Attaching Permanent Owner Provided Signs	60	15.00	10	12	22	330.00	180.00
9.	Farm Fence (Type F-5)	5575	4.85	5276	-0-	5276	25,588.60	-0-
10.	Miscellaneous Site Work	1	LS	1	1.0	1.0	1,750.00	1,750.00
	Subtotal						107,177.35	
	Change Order #1						2,900.00	
	Change Order #2						6,900.00	
	Materials on Site (Attach Schedule)	--	--	\$	\$	— >	\$	\$
TOTAL							\$116,977.35	\$ 3,775.00

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: State of Montana, Department of State Lands OWNER

PROJECT TITLE: Hazardous Mine Opening Project 27, Jefferson & Powell Counties, Montana

MONT A/E or DSL-AMRB: 90-021 SUBSTANTIAL COMPLETION DATE: June 2, 1992

CONTRACT DATE: May 17, 1992 DSL INSPECTION DATE: June 5, 1992

LOCATION: Jefferson and Powell Counties, MT ENGINEER: Chen-Northern, Inc.

PROJECT OR PART SHALL INCLUDE: _____ PERFORMANCE BOND NO: TPI-32222428

Remediation of hazardous mine openings DATE OF BOND: May 17, 1991

SURETY: Transamerica Insurance Co.

CONTRACTOR: Scott Construction MONTANA AGENT: Sally Dundas, Flynn Insurance

ADDRESS: P.O. Box 777

East Helena, MT 59635 ADDRESS: P.O. Box 6169

TELEPHONE NO: (406)227-5740 Helena, MT 59604

The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be substantially completed on the above date.

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so the Owner can occupy or utilize the project or specified area of the project for the use for which it was intended.

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

ENGINEER: Chen-Northern, Inc.

By Jeremiah B. Bowser 6/5/92
Authorized Representative Date

The Contractor accepts the above Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR: Scott Construction, Inc.

By Pat Scott 6-30-92
Authorized Representative Date

The Owner accepts the Project or specified area of the Project as substantially complete and will assume full possession of the project or specified area at _____ (time), on _____ (date). The responsibility for heat, utilities, security, and insurance under the Contract Documents shall be as set forth under "Remarks" below.

OWNER: State of Montana, Department of State Lands

By Vic R. Anderson 7/1/92
Authorized Representative Date

Remarks: (Attach additional sheet, if necessary)

RECEIVED

JUN 16 1992

STATE LANDS

SCOTT CONSTRUCTION, INC.

CONTRACTOR'S CERTIFICATE OF COMPLETION

TO: Department of State Lands
Capitol Station
Helena, MT 59620
ATTN: Mr. Joel Chavez, Project Coordinator

FROM: Scott Construction, Inc.

PROJECT: Project 27 Hazardous Mine Opening

This is to certify that I, Patti Scott, am an authorized official of Scott Construction, Inc., working in the capacity of President and have been properly authorized by said corporation to sign the following statements:

I know of my personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the Contract Plans and Specifications.

The contract work is now complete in all parts and requirements and ready for your final inspection.

I understand that neither the determination of the Engineer that the work is complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

CONTRACTOR: SCOTT CONSTRUCTION, INC.

BY: Patti Scott
Patti Scott, President

6-8-92

Distribution: 1. Project Manager
2. Field Office
3. File

RECEIVED

JUN 16 1992

STATE LANDS**CERTIFICATE OF ACCEPTANCE**TO: Montana Department of State Lands/Abandoned Mine Reclamation Bureau OWNERPROJECT TITLE: Hazardous Mine Opening ProjectMONT A/E or DSL-AMRB: 90-021CONTRACT DATE: May 17, 1991LOCATION: Jefferson and PowellCounties, Montana

PROJECT OR PART SHALL INCLUDE: _____

CONTRACTOR: Scott ConstructionADDRESS: P.O. Box 777East Helena, MT 59635TELEPHONE NO: (406) 227-5740FINAL ACCEPTANCE DATE: June 8, 1992DSL INSPECTION DATE: June 5, 1992ENGINEER: Chen-Northern, Inc.PERFORMANCE BOND NO: 8B-TP1 3222427DATE OF BOND: 5-10-91SURETY: Trans America Premier InsuranceMONTANA AGENT: Flynn InsuranceADDRESS: P.O. Box 711Great Falls, MT 59403

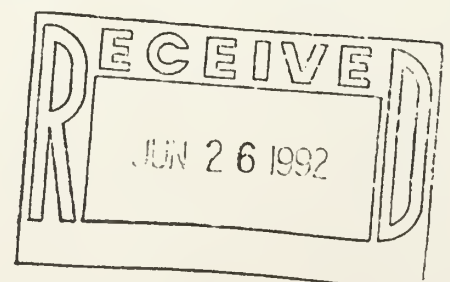
The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be totally completed and accepted on the above date.

ENGINEER: Chen-Northern, Inc.By Jeremiah B. Bousser 6/12/92
Authorized Representative Date

The Contractor accepts the above Certificate of Acceptance and agrees to abide by the conditions of the one-year warranty period which began on the substantial completion date.

CONTRACTOR: Scott Construction, Inc.By Gatti Scott, Inc. 6-10-92
Authorized Representative Date

The Owner accepts the Project as totally complete, and final payment is due to the Contractor as provided in the contract documents.

OWNER: Montana Department of State LandsBy Bonnie Lovelace 6-17-92
Authorized Representative Date

APPENDIX F
QUANTITIES AND COSTS

HAZARDOUS MINE OPENING PROJECT 27 TOTALS QUANTITIES AND COSTS

DISTRICT NAME	BACKFILL (C.Y.)	BLASTS	ADIT GATES	CULVERTS	GRATES	FARM FENCE (L.F.)	SIGNS	COSTS
Basin	465	5	2	4	2	2261	8	\$ 24,954.60
Boulder	1783	1	0	1	4	0	0	\$ 14,631.25
Cataract	6229	1	0	8	4	2474	12	\$ 47,632.65
High Ore	150	0	0	8	0	0	0	\$ 4142.50
Montana City	L.S.	0	0	0	0	0	0	\$ 150.00
Elliston	190	0	0	8	5	541	2	\$ 21,766.35
Mobilization								\$ 1950.00
Misc. Site Work								\$ 1750.00
PROJECT TOTALS	8817	11	2	20	15	5276	22	\$ 116,977.35

**HAZARDOUS MINE OPENING PROJECT 27
BASIN MINING DISTRICT
QUANTITIES AND COSTS**

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Bluebell Health	1-1	Blast	Blast				245.00
	1-2	Backfill	Backfill	15			56.25
Boulder	2-3	Backfill	Backfill	68			255.00
	2-4 2-5	Fence	Fence		711	0	3508.35
	2-6 2-7 2-8 2-9	Fence	Fence		839	4	4129.15
	2-10	Culvert	Culvert				1300.00
Doris	3-11	Blast	Blast				245.00
	3-12	Blast	Blast				245.00
Eureka	16-13	Blast	Blast				245.00
Hope	10-15	Adit Gate	Adit Gate				1250.00
Indian Head Rock	5-16	Backfill	Backfill	15			56.25
	5-17	Backfill	Backfill	30			112.50
Josephine	6-18	Fence	Fence		88	0	426.80
	6-19	Fence	Fence		90	0	436.50
Marguerite	7-20	Backfill	Backfill	115			431.25
NE NW Sec. 6	9-21	Fence	Fence		110	0	533.50
NW SW Sec. 7	11-22	Cable Net	Culvert				1300.00
	11-23	Fence	Fence		182	0	882.70
Placer	12-24 12-25	Fence	Fence		205	0	994.25
Porphyry	13-26	Backfill	Culvert				1300.00
SE NW Sec. 30	14-27	Grate	10'x 10' Grate				1600.00 (Installation) 509.42 (Fabrication)
SE SE Sec. 25	8-28	Grate	16'x 16' Grate				1600.00 (Installation) 1044.38 (Fabrication)
	8-29	Fence	Fence		36	0	174.60

HAZARDOUS MINE OPENING PROJECT 27
BASIN MINING DISTRICT
QUANTITIES AND COSTS

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	LF.	SIGNS	COST
SW SE Sec. 1	15-30	Backfill	Backfill	222			832.50
	15-32	Culvert	Culvert				1300.00
Torpy Gulch	18-35	Blast	Blast				245.00
Winters Camp	19-36	Adit Gate	Adit Gate				1250.00
Mobilization							399.98
Misc. Site Work							359.03
TOTAL				465	2261	8	\$ 27,267.41

**HAZARDOUS MINE OPENING PROJECT 27
BOULDER MINING DISTRICT
QUANTITIES AND COSTS**

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Boulder View	1-1	Backfill	Backfill	251			941.25
May Day	4-2	Backfill	Backfill	47			176.25
Montana City	2-1	Backfill	Backfill	L.S.			150.00
NE NW Sec. 15	5-3	Grate	24'x 24' Grate				1600.00 (Installation) 2478.52 (Fabrication)
	5-4	Grate	16'x 24' Grate				1600.00 (Installation) 1627.12 (Fabrication)
	5-5	Culvert	Culvert				1300.00
	5-6	Grate	24'x 24' Grate				1600.00 (Installation) 2478.52 (Fabrication)
SW NW Sec. 6	6-7	Backfill	Backfill	314			1177.50
	6-16	Fence	Dropped				-
SW SE Sec. 21	7-8	Backfill	Backfill	340			1275.00
SW SW Sec. 24	8-9	Grate	10'x 10' Grate				1600.00 (Installation) 509.42 (Fabrication)
SW SW Sec. 8	9-10	Backfill	Backfill	56			210.00
Saul's Claim	10-11	Blast	Blast				245.00
Silversmith	11-13	Backfill	Backfill	82			307.50
	11-15	Backfill	Backfill	693			2598.75
Montana City	1-1	Backfill	Backfill	L.S.			150.00
Mobilization							331.04
Misc. Site Work							297.08
TOTAL				1783	0	0	\$ 22,502.95

**HAZARDOUS MINE OPENING PROJECT
CATARACT MINING DISTRICT
QUANTITIES AND COSTS**

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Ba Ka Maa	1-1	Backfill	Backfill	444			1665.00
Boston	2-2	Fence	Fence		266	1	1305.10
Boulder Chief	3-3	Fence	Fence		963	4	4730.55
	3-4	Culvert	Site dropped				-
Boulder Vestal	4-5	Adit Gate	Culvert				1300.00
	4-6	Fence	Fence		171	4	844.35
	4-7	Fence	Fence		136	1	674.60
	4-8	Fence	Fence		115	1	572.75
	4-9	Culvert	Culvert				1300.00
	4-10	Adit Gate	Culvert				1300.00
	4-12	Culvert	Culvert				1300.00
Buckeye	5-13	Fence	Fence		252	4	1237.20
Corbitt	9-18	Backfill	Backfill	66			247.50
	7-15	Backfill	Backfill	27			101.25
	7-16	Backfill	Backfill	53			198.75
Crescent	8-17	Grate	Site dropped				-
Deer Lodge	9-18	Backfill	Backfill	1166			4372.50
	9-19	Backfill	Backfill	222			832.50
	9-20	Backfill	Backfill	1134			4252.50
	9-21	Backfill	Backfill	648			2430.00
Ida M.	10-22	Backfill	Backfill	132			495.00
Ida May	11-23	Grate	8'x 16' grate				1600.00 522.19 (Fabrication)
Marey An	12-24	Grate	8'x 16' Grate				1600.00 (Installation) 522.19 (Fabrication)

**HAZARDOUS MINE OPENING PROJECT
CATARACT MINING DISTRICT
QUANTITIES AND COSTS**

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Minneapolis	13-25	Backfill	Backfill	37			138.75
	13-26	Backfill	Backfill	37			138.75
	13-27	Backfill	Backfill	835			3131.25
	13-28	Backfill	Backfill	354			1327.50
	13-29	Backfill	Backfill	37			138.75
Mount Thompson	15-31 15-32	Fence Fence			470	2	2309.5
NE NW Sec.3	18-34	Backfill	Backfill	32			120.00
Rocker/Ada	19-36	Blast	Blast				245.00
	19-37	Blast	Dropped				--
SE SW Sec.28	20-39	Adit Gate	Culvert				1300.00
SW NW Sec.29	21-40	Backfill	Backfill	24			90.00
Sparkling Water	22-42	Culvert	Dropped				--
Vera Marie/MG #4	23-44	Grate	24'x 24' Grate				1600.00 (Installation) 2478.52 (Fabrication)
	23-45	Fence	Fence		101	1	504.85
Victory	24-46	Sp. Grate	16'x 18' Grate				550.00 (Installation) (Fabrication)
White Pine/Custer	25-47	Backfill	Backfill	833			3123.75
	25-48	Backfill	Backfill	148			555.00
Mobilization							773.83
Misc. Site Work							694.51
TOTAL				6229	2474	12	\$ 52,623.89

HAZARDOUS MINE OPENING PROJECT 27
HIGH ORE MINING DISTRICT
QUANTITIES AND COSTS

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.P.	SIGNS	COST
NE NE Sec. 15	2-1	Blast	Blast				245.00
Rochester	1-2	Backfill	Backfill	150			562.50
S. B. Jr.	5-3	Cable Net	Culvert				1300.00
SW NW Sec. 15	6-4	Culvert	Culvert				1300.00
Stair	7-5	Blast	Blast				245.00
	7-6	Blast	Blast				245.00
Will Parkinson	8-7	Blast	Blast				245.00
Mobilization							62.87
Misc. Site Work							56.28
TOTAL				150			\$ 4261.65

**HAZARDOUS MINE OPENING PROJECT 27
ELLISTON MINING DISTRICT
QUANTITIES AND COSTS**

SITE NAME	NO.	SPECIFIED	CONSTRUCTED	C.Y.	L.F.	SIGNS	COST
Champion	2-1	Grate	10'x 10' Grate				1600.00 (Installation) 509.42 (Fabrication)
	2-2	Backfill	Backfill	42			157.50
	2-3	Backfill	Backfill	27			101.25
Excelsior	3-4	Sp.Grate	8'x 16' Grate				1600.00 (Installation) Incl. (Fabrication)
Hub Camp	5-5	Backfill	Backfill	29			108.75
Julia	6-6	Grate	24'x 24' Grate				1600.00 (Installation) 2478.52 (Fabrication)
	6-7	Culvert	Culvert				1300.00
Kimball	7-8	Cable Net	Culvert				1300.00
Lily/Orphan Boy	8-9	Sp. Grate	8'x 12' Grate				1600.00 (Installation) Incl. (Fabrication)
NE NW Sec. 12	9-10	Culvert	Culvert				1300.00
NW SW Sec. 15	11-11	Culvert	Culvert				1300.00
Orphan Widow	13-12	Culvert	Culvert				1300.00
	13-13	Culvert	Culvert				1300.00
	13-15	Fence	Fence		144	0	713.40
SE SW Sec. 8	15-16	Culvert	Culvert				1300.00
	15-17	Fence	Fence		313	0	1533.05
SW SW Sec. 26	17-18	Culvert	Culvert				1300.00
Third Term	18-19	Backfill	Backfill	92			345.00
Total Wreck	16-20	Fence	10'x 10' Grate				1600.00 (Installation) 509.42 (Fabrication)
West Ontario	12-21	Fence	Fence		84	0	407.40
Mobilization							382.28
Misc. Site Work							343.10
TOTAL				190	541	2	\$ 25,989.09

APPENDIX G
PHOTOGRAPHIC RECORD

**PHOTOGRAPHIC RECORD
HMO PROJECT 27**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
1	10/7/91	Basin	Bluebell	1-1	Before blast, 10' N. of opening
2	11/20/91	Basin	Bluebell	1-1	Hand backfilling adit, 10' N. of opening
3	11/25/91	Basin	Bluebell	1-1	Complete blast, 15' N. of opening
4	10/7/91	Basin	Bluebell	1-2	Before backfill, 5' N. of opening
5	10/24/91	Basin	Bluebell	1-2	Complete backfill, 20' N. of opening
6	10/11/91	Basin	Boulder	2-3	Before backfill, 10 S. of opening
7	10/11/91	Basin	Boulder	2-3	Backfilling shaft, 35'S. of opening
8	10/11/91	Basin	Boulder	2-3	Complete backfill, 50' SE of opening
9	8/20/91	Basin	Boulder	2-4	Before fence, 10' E. of opening
10	8/20/91	Basin	Boulder	2-4	Equipment - Post hole auger
11	8/20/91	Basin	Boulder	2-4	Complete fence, 30' E. of opening
12	8/20/91	Basin	Boulder	2-5	Before fence, 10' W. of opening
13	8/20/91	Basin	Boulder	2-5	Installing corner posts w/ hole auger
14	8/26/91	Basin	Boulder	2-5	Complete fence, 20' S. of opening
15	8/22/91	Basin	Boulder	2-5	Before fence, 30' S. of opening
16	8/20/91	Basin	Boulder	2-6	Complete fence, 20' E. of opening
17	8/22/91	Basin	Boulder	2-7	Before fence, 5' N. of opening
18	8/26/91	Basin	Boulder	2-7	Complete fence, 20' W. of opening
19	8/20/91	Basin	Boulder	2-8 2-9	Before fence, 10' E. of opening
20 21 22	8/26/91	Basin	Boulder	2-8 2-9	Complete fence, 50' W. of opening East line looking south East line looking north
23	8/19/91	Basin	Boulder	2-10	Before culvert, 5' E. of opening
24	8/19/91	Basin	Boulder	2-10	Installing culvert, 30' E. of opening
25	8/21/91	Basin	Boulder	2-10	Complete culvert, 10' E. of opening
26	10/4/91	Basin	Doris	3-11	Before blast, 20' E. of opening
27	11/20/91	Basin	Doris	3-11	Complete blast, 20' E. of opening
28	10/4/91	Basin	Doris	3-12	Before blast, 10' E. of opening
29	11/20/91	Basin	Doris	3-12	Complete blast, 15' E. of opening
30	10/22/91	Basin	Eureka	16-13	Before blast, 20' S. of opening
31	11/25/91	Basin	Eureka	16-13	Complete blast, 20' S. of opening
32	10/9/91	Basin	Hope	10-15	Before adit gate, 30' N. of opening

**PHOTOGRAPHIC RECORD
HMO PROJECT 27**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
33	11/19/91	Basin	Hope	10-15	Complete adit gate, inside adit
34	11/22/91	Basin	Ind. Hd. Rk	5-16	Before backfill, 15' E. of opening
45	11/22/91	Basin	Ind. Hd. Rk	5-16	Removing timbers from portal, 20' E.
36	11/22/91	Basin	Ind. Hd. Rk	6-18	Complete backfill, 15' E. of backfill
47	11/22/91	Basin	Ind. Hd. Rk	5-17	Before backfill, 15' E. of opening
38	11/22/91	Basin	Ind. Hd. Rk	5-17	Backfilling adit, 20' E. of adit
49	11/22/91	Basin	Ind. Hd. Rk	5-17	Complete backfill, 15' E. of opening
40	8/28/91	Basin	Josephine	6-18	Before fence, 10' S. of opening
41	9/16/91	Basin	Josephine	6-18	Installing fence, 10' S. of opening
42	9/16/91	Basin	Josephine	6-18	Complete fence, 20' E. of opening
43	9/16/91	Basin	Josephine	6-19	Before fence, 5' S. of opening
33	9/16/91	Basin	Josephine	6-18	Installing fence, 10' E. of opening
45	9/16/91	Basin	Josephine	6-19	Complete fence, 20' E. of opening
46	9/19/91	Basin	Marguerite	7-20	Before backfill, 20' W. of opening
47	10/23/91	Basin	Marguerite	7-20	Backfilling shaft, 20' N. of opening
48	10/24/91	Basin	Marguerite	7-20	Complete backfill, 20' S. of opening
49	10/24/91	Basin	Marguerite	7-20	Seeded area, 10' N. of opening
50	8/21/91	Basin	NE NW Sec. 6	9-21	Before fence, 5' S. of opening
50	9/16/91	Basin	NE NW Sec. 6	7-20	Complete fence, 20' E. of opening
52	8/29/91	Basin	NW SW Sec. 7	11-22	Before culvert, 20' W. of opening
53	8/29/91	Basin	NW SW Sec. 7	11-22	Installing culvert, 20' W. of opening
63	8/30/91	Basin	NW SW Sec. 7	11-22	Complete culvert, 20' W. of opening
55	8/29/91	Basin	NW SW Sec. 7	11-23	Before fence, 10' S. of opening
56	8/30/91	Basin	NW SW Sec. 7	11-23	Installing fence, 10' N. of opening
57	9/16/91	Basin	NW SW Sec. 7	11-23	Complete fence, 20' W. of opening
58 59 60	8/27/91	Basin	Placer	12-24 12-25	Before fence, 30' N. of opening Before fence, 10' W. of opening Before fence, 10' W. of opening
61	8/27/91	Basin	Placer	12-24 12-25	Installing fence, 10' W. of opening
62	11/5/91	Basin	Porphyry	13-26	Before culvert, 20' N. of adit
63	11/5/91	Basin	Porphyry	13-26	Installing culvert, 20' N. of adit
64	11/5/91	Basin	Porphyry	13-26	Installing culvert, 20' N. of opening

**PHOTOGRAPHIC RECORD
HMO PROJECT 27**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
65	11/5/91	Basin	Porphyry	13-26	Complete culvert, 20' N. of opening
66	8/23/91	Basin	SE NW Sec. 30	14-27	Before grate, 5' W. of opening
67	9/24/91	Basin	SE NW Sec. 30	14-27	Complete grate installation, 10' SW
68	8/23/91	Basin	SE SE Sec. 25	8-28	Before grate, 10' N. of opening
69	8/23/91	Basin	SE SE Sec. 25	8-28	Installing grate, 20' E. of opening
70	9/24/91	Basin	SE SE Sec. 25	8-29	Complete grate installation, 10' E.
71	8/23/91	Basin	SE SE Sec. 25	8-29	Before fence, 5' E. of opening
72	9/24/91	Basin	SE SE Sec. 25	8-29	Complete fence, 5' NE of opening
73	9/22/91	Basin	SW SE Sec. 1	15-30	Before backfill, 30' S. of opening
74	10/4/91	Basin	SW SE Sec. 1	15-30	Backfilling shaft, 25' W. of opening
75	10/4/91	Basin	SW SE Sec. 1	15-30	Backfilling shaft, 25' W. of opening
76	10/4/91	Basin	SW SE Sec. 1	15-30	Complete backfill, 30' E. of opening
77	9/22/91	Basin	SW SE Sec. 1	15-32	Before culvert, 10' W. of opening
78	11/20/91	Basin	SW SE Sec. 1	15-32	Removing timbers, 10' W. of adit
79	11/20/91	Basin	SW SE Sec. 1	15-32	Installing culvert, 10' W. of opening
80	11/20/91	Basin	SW SE Sec. 1	15-32	Complete culvert, 10' W. of opening
81	11/25/91	Basin	Torpy Gulch	18-35	Before blast, 20' S. of adit
82	5/29/92	Basin	Torpy Gulch	18-35	Hand placing rock, 25' E. of opening
83	5/29/92	Basin	Torpy Gulch	18-35	Hand placing rock, 25' E. of opening
84	6/5/92	Basin	Torpy Gulch	18-35	Complete closure, 25' E. of opening
85	6/88	Basin	Winters Camp	15-30	Before adit gate, 5' E. of portal
86	11/19/91	Basin	Winters Camp	19-36	Complete adit gate, 10' E. of opening
87	9/30/91	Boulder	Boulder View	1-1	Before backfill, 15' S. of opening
88	9/30/91	Boulder	Boulder View	1-1	Backfilling shaft, 25' S. of shaft
89	9/30/91	Boulder	Boulder View	1-1	Complete backfill, 20' N. of opening
90	9/30/91	Boulder	Boulder View	1-1	Seeded area, 10' N. of opening
91	10/9/91	Boulder	May Day	4-2	Before backfill, 15' S. of opening
92	10/9/91	Boulder	May Day	4-2	Backfilling adit trench, 50' S.
93	10/9/91	Boulder	May Day	4-2	Complete backfill, 50' S. of opening
94	11/14/91	Boulder	NE NW Sec. 15	5-3	Before grate, 15' N. of opening
95	11/15/91	Boulder	NE NW Sec. 15	5-3	Installing grate, 20' E. of shaft
96	11/18/91	Boulder	NE NW Sec. 15	5-3	Pouring concrete footings, 20' E.

**PHOTOGRAPHIC RECORD
HMO PROJECT 27**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
98	11/18/91	Boulder	NE NW Sec. 15	5-3	Complete grate, 20' N. of shaft
98	11/18/91	Boulder	NE NW Sec. 15	5-4	Before grate, 10' N. of opening
99	11/15/91	Boulder	NE NW Sec. 15	5-4	Installing grate, 15' E. of opening
100	11/18/91	Boulder	NE NW Sec. 15	5-4	Pouring concrete footings, 15' E.
121	11/18/91	Boulder	NE NW Sec. 15	5-4	Complete grate, 20' N. of shaft
102	11/18/91	Boulder	NE NW Sec. 15	5-5	Before culvert, 10' N. of opening
103	11/15/91	Boulder	NE NW Sec. 15	5-5	Installing culvert, 10' E. of opening
104	11/18/91	Boulder	NE NW Sec. 15	5-5	Complete culvert, 15' E. of opening
105	11/18/91	Boulder	NE NW Sec. 15	5-5	Seeded area, 25' E. of opening
106	11/18/91	Boulder	NE NW Sec. 15	5-6	Before grate, 15' N. of opening
117	11/15/91	Boulder	NE NW Sec. 15	5-6	Installing grate, 15' E. of opening
108	11/18/91	Boulder	NE NW Sec. 15	5-6	Pouring concrete footings, 25' E.
109	11/18/91	Boulder	NE NW Sec. 15	5-6	Complete grate, 30' E. of shaft
110	9/30/91	Boulder	SW NW Sec. 6	6-7	Before backfill, 10' W. of opening
119	9/30/91	Boulder	SW NW Sec. 6	6-7	Backfilling shaft, 10' W. of opening
102	9/30/91	Boulder	SW NW Sec. 6	6-7	Backfilling shaft, 10' W. of opening
113	9/30/91	Boulder	SW NW Sec. 6	6-7	Complete backfill, 10' W. of opening
116	10/3/91	Boulder	SW SE Sec. 21	7-8	Before backfill, 10' N. of opening
118	10/8/91	Boulder	SW SE Sec. 21	7-8	Backfilling shaft, 10' N. of shaft
116	10/8/91	Boulder	SW SE Sec. 21	7-8	Backfilling shaft, 30' S. of opening
117	10/9/91	Boulder	SW SE Sec. 21	7-8	Complete backfill, 30' S. of opening
118	11/18/91	Boulder	SW SW Sec. 2	8-5	Before grate, 10' W. of shaft
119	11/18/91	Boulder	SW SW Sec. 2	8-5	Installing grate, 10' W. of shaft
120	11/18/91	Boulder	SW SW Sec. 8	8-5	Complete grate installation, 10' W.
121	11/22/91	Boulder	SW SW Sec. 8	9-10	Before backfill, 20' E. of opening
122	11/22/91	Boulder	SW SW Sec. 8	9-10	Backfilling adit, 20' E. of adit
123	11/22/91	Boulder	SW SW Sec. 8	9-10	Complete backfill, 20' E. of opening
124	9/29/91	Boulder	Saul's Claim	10-11	Before blast, 15' N. of opening
125	9/30/91	Boulder	Saul's Claim	10-11	Complete blast, 15' N. of opening
126	9/30/91	Boulder	Saul's Claim	10-11	Seeded area, 15' N. of adit
127	9/30/91	Boulder	Silversmith	11-13	Before backfill, 10' NE of shaft
128	10/1/91	Boulder	Silversmith	11-13	Backfilling shaft, 15' N. of opening

PHOTOGRAPHIC RECORD HMO PROJECT 27					
SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
129	10/1/91	Boulder	Silversmith	11-13	Complete backfill, 15' N. of opening
130	10/1/91	Boulder	Silversmith	11-13	Seeded area, 15' N. of shaft
131	9/30/91	Boulder	Silversmith	11-15	Before backfill, 10' NW of shaft
132	9/30/91	Boulder	Silversmith	11-15	Stuck Cat accessing site
133	9/30/91	Boulder	Silversmith	11-15	Backfilling shaft, 10' NW of shaft
134	9/30/91	Boulder	Silversmith	11-15	Complete backfill, 10' SW of shaft
149	9/30/91	Boulder	Silversmith	11-15	Seeded area, 15' N. of opening
136	9/30/91	Boulder	Silversmith	11-15	Seeded access route, 100' S. of shaft
137	9/30/91	Boulder	Silversmith	11-15	Stuck Cat leaving site
138	10/24/91	Catacart	Ba Ka Maa	1-1	Before backfill, 30' NE of shaft
139	10/24/91	Catacart	Ba Ka Maa	4-8	Backfilling shaft, 30' E. of shaft
140	10/24/91	Catacart	Ba Ka Maa	1-1	Complete backfill, 50' S. of shaft
141	9/19/91	Catacart	Boston	2-2	Before fence, 10' SW of shaft
142	11/6/91	Catacart	Boston	2-2	Installing fence, 20' SW of opening
143	11/6/91	Catacart	Boston	2-2	Complete fence, 20' W. of opening
144	9/19/91	Catacart	Boulder Chief	3-3	Before fence, 50' W. of opening
145	9/20/91	Catacart	Boulder Chief	3-3	Installing fence, 50' S. of opening
146	9/20/91	Catacart	Boulder Chief	3-3	Installing fence, 50' E. of opening
149	9/20/91	Catacart	Boulder Chief	3-3	Installing fence, 50' S. of opening
148	9/20/91	Catacart	Boulder Chief	3-3	Complete fence, 50' W. of opening
149	9/20/91	Catacart	Boulder Chief	3-3	Complete fence, 50' W. of opening
150	9/19/91	Catacart	Boulder Vestal	4-5	Before culvert, 10' SW of adit
151	11/8/91	Catacart	Boulder Vestal	4-8	Installing culvert, 10' W. of adit
152	11/6/91	Catacart	Boulder Vestal	4-5	Complete culvert installation, 10' W.
153	9/19/91	Catacart	Boulder Vestal	4-6	Before fence, 10' N. of opening
154	11/20/91	Catacart	Boulder Vestal	4-6	Complete fence, 25' N. of opening
158	9/19/91	Catacart	Boulder Vestal	4-8	Before fence, 10' N. of opening
156	11/20/91	Catacart	Boulder Vestal	4-7	Complete fence, 15' N. of opening
157	9/19/91	Catacart	Boulder Vestal	4-8	Before fence, 10' W. of opening
158	11/20/91	Catacart	Boulder Vestal	4-6	Complete fence, 10' S. of opening
159	9/19/91	Catacart	Boulder Vestal	4-9	Before Culvert, 10' S. of opening
160	11/6/91	Catacart	Boulder Vestal	4-9	Installing culvert, 20' S. of adit

**PHOTOGRAPHIC RECORD
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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
161	11/6/91	Cataract	Boulder Vestal	4-9	Complete culvert installation, 15' S.
162	9/19/91	Cataract	Boulder Vestal	3-17	Before culvert, 10' SE of adit
163	11/6/91	Cataract	Boulder Vestal	4-10	Installing culvert, 20' S. of opening
164	11/25/91	Cataract	Boulder Vestal	4-10	Complete culvert installation, 15' S.
165	9/19/91	Cataract	Boulder Vestal	4-12	Before culvert, 15' SE of adit
166	11/6/91	Cataract	Boulder Vestal	4-12	Installing culvert, 15' SW of adit
167	11/6/91	Cataract	Boulder Vestal	4-10	Complete culvert installation, 15' S.
168	9/19/91	Cataract	Buckeye	5-13	Before fence, 25' NE of shaft
169	10/9/91	Cataract	Buckeye	5-13	Complete fence, 30' N. of shaft
170	9/5/91	Cataract	Corbitt	7-14	Before backfill, 20' W. of shaft
171	10/10/91	Cataract	Corbitt	7-14	Backfilling shaft, 15' N. of shaft
172	10/10/91	Cataract	Corbitt	7-14	Complete backfill, 15' N. of shaft
173	9/5/91	Cataract	Corbitt	7-15	Before backfill, 5' N. of shaft
174	10/10/91	Cataract	Corbitt	7-15	Backfilling shaft, 5' N. of opening
175	10/10/91	Cataract	Corbitt	7-15	Complete backfill, 20' S. of shaft
176	9/5/91	Cataract	Corbitt	7-14	Before backfill, 10' E. of shaft
177	10/10/91	Cataract	Corbitt	7-16	Backfilling shaft, 10' N. of shaft
178	10/10/91	Cataract	Corbitt	7-16	Complete backfill, 30' S. of shaft
179	9/5/91	Cataract	Crescent	8-17	Building before demolition, 50' SW
180	9/5/91	Cataract	Crescent	8-17	Front of building, looking inside, 20' W.
181	9/5/91	Cataract	Crescent	8-17	Inside building, 10' W. of shaft
182	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
183	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
184	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
185	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
186	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
187	6/1/92	Cataract	Crescent	8-17	Site dropped from contract
188	9/19/91	Cataract	Deer Lodge	8-17	Before backfill, 10' N. of shaft
189	10/1/91	Cataract	Deer Lodge	8-17	Backfilling shaft, 20' E. of shaft
190	10/1/91	Cataract	Deer Lodge	9-18	Grading spoils area, 20' N. of shaft
191	10/1/91	Cataract	Deer Lodge	9-18	Complete backfill, 10' N. of shaft
192	9/19/91	Cataract	Deer Lodge	9-19	Before backfill, 5' S. of shaft

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HMO PROJECT 27**

SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
193	10/4/91	Cataract	Deer Lodge	9-19	Backfilling shaft, 10' N. of shaft
194	10/1/91	Cataract	Deer Lodge	9-19	Complete backfill, 20' E. of shaft
195	9/19/91	Cataract	Deer Lodge	9-20	Before backfill, 30' NE of shaft
196	10/4/91	Cataract	Deer Lodge	9-20	Backfilling shaft, 20' NE of shaft
197	10/1/91	Cataract	Deer Lodge	9-20	Backfilling shaft, 20' NE of shaft
198	10/2/91	Cataract	Deer Lodge	9-20	Complete backfill, 10' NE of shaft
199	10/2/91	Cataract	Deer Lodge	9-20	Complete backfill, 20' SW of shaft
200	10/4/91	Cataract	Deer Lodge	9-20	Seeded area, 30' SW of shaft
201	9/19/91	Cataract	Deer Lodge	9-21	Before backfill, 75' NE of shaft
202	10/2/91	Cataract	Deer Lodge	9-21	Backfilling shaft, 70' NE of shaft
203	10/2/91	Cataract	Deer Lodge	9-21	Backfilling shaft, 10' NW of shaft
204	10/2/91	Cataract	Deer Lodge	9-21	Complete backfill, 10' NE of shaft
205	10/4/91	Cataract	Deer Lodge	9-20	Seeded area, 25' SW of shaft
206	9/19/91	Cataract	Ida M.	10-22	Before backfill, 20' SW of adit
207	11/19/91	Cataract	Ida M.	10-22	Backfilling adit, 35' W. of adit
208	11/19/91	Cataract	Ida M.	10-22	Backfilling adit, 35' W. of adit
209	11/19/91	Cataract	Ida M.	10-22	Complete backfill, 35' W. of adit
210	9/5/91	Cataract	Ida May	11-23	Before grate, 10' SW of shaft
211	9/5/91	Cataract	Ida May	11-23	Installing grate, 20' W. of shaft
212	5/29/92	Cataract	Ida May	11-23	Installing grate, 15' W. of shaft
213	5/29/92	Cataract	Ida May	11-23	Complete grate, 15' W. of shaft
214	10/21/91	Cataract	Marey An	12-24	Before grate, 10' S. of shaft
215	11/5/91	Cataract	Marey An	12-24	Installing grate, 10' E. of shaft
216	11/5/91	Cataract	Marey An	12-24	Installing grate, 10' W. of shaft
207	11/5/91	Cataract	Marey An	12-24	Installing grate, 10' W. of shaft
218	11/5/91	Cataract	Marey An	12-24	Installing grate, 10' S. of shaft
219	11/5/91	Cataract	Marey An	12-24	Complete grate, 10' S. of shaft
220	11/5/91	Cataract	Marey An	12-24	Complete grate, 10' S. of shaft
221	9/19/91	Cataract	Minneapolis	13-25	Before backfill, 10' S. of opening
222	10/3/91	Cataract	Minneapolis	13-25 13-26	Complete backfill, 20' S. of opening
223	10/4/91	Cataract	Minneapolis	13-25	Seeded area, 30' S. of opening

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
224	9/19/91	Cataract	Minneapolis	13-26	Before backfill, 10' S. of opening
225	10/4/91	Cataract	Minneapolis	13-26	Seeded area, 20' S. of opening
226	9/19/91	Cataract	Minneapolis	13-27	Before backfill, 10' W. of opening
227	10/3/91	Cataract	Minneapolis	13-27	Backfilling shaft, 10' W. of shaft
228	10/4/91	Cataract	Minneapolis	13-27	Seeded area, 10' W. of opening
229	9/19/91	Cataract	Minneapolis	13-28	Before backfill, 5' S. of opening
230	10/3/91	Cataract	Minneapolis	13-28	Complete backfill, 20' S. of opening
231	10/3/91	Cataract	Minneapolis	13-28	Seeded area, 25' S. of opening
232	9/19/91	Cataract	Minneapolis	13-29	Before backfill, 10' W. of opening
233	10/4/91	Cataract	Minneapolis	13-29	Complete backfill and seeded area, 10' SE
234	9/19/91	Cataract	Mt. Thompson	15-31	Before fence, 10' W. of opening
235	9/18/91	Cataract	Mt. Thompson	15-32	Before fence, 10' W. of opening
236	9/27/91	Cataract	Mt. Thompson	15-31 15-32	Installing fence, 35' S. of openings
237	9/27/91	Cataract	Mt. Thompson	15-31 15-32	Complete fence, 50' S. of openings
238	11/19/91	Cataract	Mt. Thompson	15-31 15-32	Complete fence with sign, 50' E.
240	11/19/91	Cataract	NE NW Sec. 3	18-34	Before backfill, 20' S. of adit
240	11/19/91	Cataract	NE NW Sec. 3	18-34	Backfilling adit, 20' S. of adit
241	11/19/91	Cataract	NE NW Sec. 3	18-34	Complete backfill, 20' S. of adit
242	10/21/91	Cataract	Rocker Ada	19-36	Before blast, 30' SE of adit
243	11/21/91	Cataract	Rocker Ada	19-36	Complete blast, 30' SE of adit
244	11/20/91	Cataract	SE SW Sec. 28	20-39	Before culvert, 60' W. of adit
245	11/21/91	Cataract	SE SW Sec. 28	20-39	Installing drainpipe, 20' W. of adit
246	11/21/91	Cataract	SE SW Sec. 28	20-39	Installing culvert, 20' W. of adit
247	11/21/91	Cataract	SE SW Sec. 28	20-39	Installing culvert, 40' W. of adit
248	11/21/91	Cataract	SE SW Sec. 28	20-39	Complete culvert installation, 60' W.
249	11/21/91	Cataract	SW NW Sec. 29	21-40	Before backfill, 30' SE of shaft
250	10/23/91	Cataract	SW NW Sec. 29	21-40	Backfilling shaft, 25' N. of shaft
251	10/23/91	Cataract	SW NW Sec. 29	21-40	Complete backfill, 35' S. of shaft
250	10/23/91	Cataract	SW NW Sec. 29	21-40	Seeded area, 35' S. of shaft
253	10/21/91	Cataract	Vera Marie	23-44	Before grate, 15' N. of shaft

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
254	10/22/91	Cataract	Vera Marie	23-44	Installing grate, 30' N. of shaft
258	10/22/91	Cataract	Vera Marie	23-44	Installing grate, 30' S. of shaft
256	10/21/91	Cataract	Vera Marie	23-44	Installing grate, 15' N. of shaft
257	11/25/91	Cataract	Vera Marie	23-44	Complete grate installation, 20' E.
258	10/21/91	Cataract	Vera Marie	23-45	Before fence, 20' W. of opening
259	11/25/91	Cataract	Vera Marie	23-45	Complete fence, 20' W. of opening
260	9/19/91	Cataract	Victory	24-46	Before grate, 10' S. of shaft
280	11/7/91	Cataract	Victory	24-46	Installing grate, 10' N. of shaft
262	11/19/91	Cataract	Victory	24-46	Complete grate installation, 10' N.
263	9/19/91	Cataract	Wh. Pine/Custer	5-3	Before backfill, 25' S. of opening
264	10/2/91	Cataract	Wh. Pine/Custer	25-47	Backfilling shaft, 10' SE of opening
268	10/3/91	Cataract	Wh. Pine/Custer	25-47	Complete backfill and seeded area, 50' W.
266	9/19/91	Cataract	Wh. Pine/Custer	25-48	Before backfill, 15' S. of shaft
267	10/2/91	Cataract	Wh. Pine/Custer	25-48	Backfilling shaft, 10' NW of shaft
268	10/2/91	Cataract	Wh. Pine/Custer	25-48	Complete backfill, 10' N. of opening
269	10/3/91	Cataract	Wh. Pine/Custer	25-48	Seeded area, 15' S. of shaft
270	9/30/91	High Ore	NE NE Sec. 15	2-1	Before blast, 10' S. of adit
271	9/30/91	High Ore	NE NE Sec. 15	2-1	Complete blast, 10' S. of opening
272	10/14/91	High Ore	Rochester	1-2	Before backfill, 10' W. of opening
273	10/14/91	High Ore	Rochester	1-2	Backfilling shaft, 10' S. of opening
274	10/18/91	High Ore	Rochester	1-2	Complete backfill, 10' S. of opening
279	6/88	High Ore	S.B. Jr.	5-3	Before culvert, 10' S. of adit
276	10/7/91	High Ore	S.B. Jr.	5-3	Installing culvert, 10' S. of adit
277	10/21/91	High Ore	S.B. Jr.	5-3	Complete culvert installation, 10' s.
278	10/18/91	High Ore	SW NE Sec. 15	6-4	Before culvert, 30' W. of adit
279	10/21/91	High Ore	SW NE Sec. 15	6-4	Complete culvert installation, 25' W.
280	9/30/91	High Ore	Stair	7-5	Before blast, 10' E. of adit
281	9/30/91	High Ore	Stair	7-5	Complete blast, 10' E. of adit
282	9/30/91	High Ore	Stair	7-6	Before blast, 10' S. of adit
283	9/30/91	High Ore	Stair	7-6	Complete blast, 10' S. of adit
284	9/30/91	High Ore	Will Parkinson	8-7	Before blast, 10' W. of adit
285	9/30/91	High Ore	Will Parkinson	8-7	Complete blast, 10' W. of adit

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
286	10/14/91	Mont. City	Allen	1-1	Before backfill, 15' N. of opening
287	10/14/91	Mont. City	Allen	1-1	Backfilling opening, 20' S. of opening
288	10/14/91	Mont. City	Allen	1-1	Complete backfill, 20' S. of opening
289	10/14/91	Mont. City	Allen	1-1	Complete backfill, 15' S. of opening
290	10/14/91	Mont. City	Allen	1-1	Complete backfill, 10' S. of opening
291	9/25/91	Elliston	Champion	2-1	Before grate, 5' S. of shaft
292	9/25/91	Elliston	Champion	2-1	Installing grate, 20' E. of shaft
293	9/25/91	Elliston	Champion	2-1	Complete grate installation, 10' E.
293	9/25/91	Elliston	Champion	2-2	Before backfill, 5' S. of shaft
294	11/12/91	Elliston	Champion	2-2	Backfilling shaft, 10' S. of shaft
296	11/12/91	Elliston	Champion	2-2	Backfilling shaft, 10' S. of shaft
297	11/12/91	Elliston	Champion	2-2	Complete backfill, 20' W. of shaft
298	9/25/91	Elliston	Champion	2-3	Before backfill, 5' S. of shaft
299	11/12/91	Elliston	Champion	2-3	Backfilling shaft, 10' S. of shaft
300	11/12/91	Elliston	Champion	2-3	Complete backfill, 20' N. of shaft
301	10/25/91	Elliston	Excelsior	3-4	Before grate, 10' NE of shaft
302	11/11/91	Elliston	Excelsior	3-4	Installing grate, 10' E. of shaft
303	11/11/91	Elliston	Excelsior	3-4	Complete grate, 10' E. of shaft
304	11/11/91	Elliston	Hub Camp	5-5	Before backfill, 10' W. of adit
305	11/11/91	Elliston	Hub Camp	5-5	Removing timbers, 20' W. of adit
306	11/12/91	Elliston	Hub Camp	5-5	Backfill complete, 30' W. of adit
307	11/13/91	Elliston	Hub Camp	5-5	Seeded area, 20' W. of adit
308	9/26/91	Elliston	Julia	6-6	Before grate, 20' S. of shaft
309	11/13/91	Elliston	Julia	6-6	Installing grate, 10' S. of shaft
310	11/13/91	Elliston	Julia	6-6	Complete grate installation, 10' E.
311	9/26/91	Elliston	Julia	6-7	Before culvert, 20' W. of adit
312	10/17/91	Elliston	Julia	6-7	Installing culvert, 50' E. of adit
313	10/17/91	Elliston	Julia	6-7	Installing culvert, 25' E. of adit
314	11/13/91	Elliston	Julia	6-7	Complete culvert installation, 20' E.
315	10/17/91	Elliston	Kimball	7-8	Before culvert, 20' W. of adit
316	10/18/91	Elliston	Kimball	7-8	Installing culvert, 20' W. of adit
317	10/18/91	Elliston	Kimball	7-8	Complete culvert installation, 20' W.

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
319	9/26/91	Elliston	Lil/Orphan Boy	8-9	Before grate, 10' W. of shaft
319	11/14/91	Elliston	Lil/Orphan Boy	8-9	Installing grate, 10' S. of shaft
320	11/13/91	Elliston	Lil/Orphan Boy	8-9	Installing grate, 10' N. of shaft
321	11/14/91	Elliston	Lil/Orphan Boy	8-9	Complete grate installation, 10' W.
322	10/17/91	Elliston	NE NW Sec. 12	9-10	Before culvert, 15' E. of adit
323	10/17/91	Elliston	NE NW Sec. 12	9-10	Installing culvert, 15' E. of adit
324	10/17/91	Elliston	NE NW Sec. 12	9-10	Seeding disturbed area, 15' E. of adit
325	10/17/91	Elliston	NE NW Sec. 12	9-10	Complete culvert installation, 15' E.
326	9/23/91	Elliston	NW SW Sec. 15	11-11	Before culvert, 15' N. of adit
327	9/23/91	Elliston	NW SW Sec. 15	11-11	Installing culvert, 35' N. of adit
328	9/23/91	Elliston	NW SW Sec. 15	11-11	Complete culvert installation, 15' N.
329	9/25/91	Elliston	Orphan Widow	13-12	Before culvert, 20' N. of adit
330	9/26/91	Elliston	Orphan Widow	13-12	Installing culvert, 30' N. of adit
331	9/26/91	Elliston	Orphan Widow	13-12	Complete culvert, 30' N. of adit
332	9/25/91	Elliston	Orphan Widow	13-13	Before culvert, 15' N. of adit
333	10/16/91	Elliston	Orphan Widow	13-13	Installing culvert, 10' N. of adit
334	11/13/91	Elliston	Orphan Widow	13-13	Complete culvert installation, 20' E.
335	9/25/91	Elliston	Orphan Widow	13-15	Before fence, 10' S. of shaft
336	10/15/91	Elliston	Orphan Widow	13-15	Installing fence, 30' N. of shaft
337	10/16/91	Elliston	Orphan Widow	13-15	Complete fence, 30' N. of shaft
338	10/15/91	Elliston	SE SW Sec. 8	15-16	Before culvert, 10' W. of adit
339	10/15/91	Elliston	SE SW Sec. 8	15-16	Installing culvert, 40' SE of portal
340	10/15/91	Elliston	SE SW Sec. 8	15-16	Installing culvert, 20' SE of portal
341	10/15/91	Elliston	SE SW Sec. 8	15-16	Complete culvert installation, 10' SE
342	10/15/91	Elliston	SE SW Sec. 8	15-17	Before fence, 100' W. of openings
343	10/25/91	Elliston	SE SW Sec. 8	15-17	Installing fence, 20' S. of openings
344	10/25/91	Elliston	SE SW Sec. 8	15-17	Complete fence, 100' S. of openings
345	9/17/91	Elliston	SW NW Sec. 26	17-18	Before culvert, 20' NW of portal
346	9/17/91	Elliston	SW NW Sec. 26	17-18	Removing timbers, 50' N. of portal
347	9/17/91	Elliston	SW NW Sec. 26	17-18	Installing drainpipe, 30' N. of portal
348	9/17/91	Elliston	SW NW Sec. 26	17-18	Installing hatch cover, 30' N. of portal
349	9/17/91	Elliston	SW NW Sec. 26	17-18	Complete culvert installation, 30' N.

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SLIDE #	DATE	MINING DISTRICT	SITE NAME	MINE OPENING #	SEQUENCE, VANTAGE POINT & DESCRIPTION
350	11/12/91	Elliston	Third Term	18-19	Before backfill, 30' S. of portal
351	11/12/91	Elliston	Third Term	18-19	Backfilling adit, 30' N. of opening
352	11/12/91	Elliston	Third Term	18-19	Complete backfill, 30' N. of opening
353	9/23/91	Elliston	Total Wreck	16-20	Before grate, 10' S. of shaft
354	9/25/91	Elliston	Total Wreck	16-20	Installing grate, 15' S. of shaft
355	9/25/91	Elliston	Total Wreck	16-20	Complete grate, 10' S. of shaft
356	9/23/91	Elliston	West Ontario	12-21	Before fence, 5' W. of shaft
357	9/25/91	Elliston	West Ontario	12-21	Installing fence, 50' W. of shaft
358	9/25/91	Elliston	West Ontario	12-21	Complete fence, 30' E. of shaft

